LOUISIANA Conservationist

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Joe L. Herring, Secretary

Comments

Another fiscal year is drawing to a close and it's time to take a closer look at your Department of Wildlife and Fisheries and the necessity for change. If we consider direct and indirect impacts, this department touches the lives of more citizens than any other agency. The impact is unquestionably positive and beneficial.

We deal not only with conserving and replenishing fish and wildlife resources, but with providing varied opportunities for nourishing outdoor experiences. This area touches a rapidly swelling portion of our citizenry. It includes hikers, photographers, canoers, campers, birdwatchers, naturalists, and thousands of families and individuals who simply enjoy a wholesome, outdoor environment.

Traditionally, the department has focused on three areas. We have a half-million hunters and almost a million recreational fishermen in Louisiana. We have 300,000 registered motorboats, which extrapolates to well over a million citizens who enjoy boating activities. Finally, we have thousands of citizens who derive livelihoods from commercial activities in either salt or fresh water environs.

I believe, and the record substantiates, that we have done well meeting our responsibilities to maintain resources and provide services to an ever increasing constituency. But times change, and the changes have been abrupt and severe. The cost of maintaining our level of services has risen sharply. At the same time, the demand for increased and expanded services has soared. Ranks of hunters and fishermen have increased slightly as the population has expanded, but a new and rapidly growing "user group" must be accommodated. These are so-called "non-consumptive" users of outdoor facilities and resources ... hikers, campers, canoers, birdwatchers and amateur naturalists. They have never been required to financially support department operations. They had no licenses to buy, nor fees to pay to utilize department lands, waters or facilities, nor to benefit from successes in our fish and wildlife management programs.

The time has come, undeniably, when the general public must begin to pay a part of the costs if the department is to meet demands for these services. This is not unreasonable. Our overall mission has advanced far beyond providing public hunting grounds, controlling water hyacinths, stocking fish and setting commercial shrimping seasons. We are challenged to provide increased "urban fishing programs," nature trails, public education programs, and other non-traditional outdoor-oriented programs. All of these cost money.

Boat ramps and aquatic weed control programs provide access for canoers and skiers as well as fishermen. WMAs and refuges provide nature trails, birdwatching, photography opportunities, and camping facilities as well as hunting and fishing. Research and management programs enhance habitat for non-game as well as game species. Records and surveys clearly reveal the large numbers of citizens using department facilities for purposes other than hunting or fishing.

We feel certain the people of Louisiana will support the changes necessary to assure that the Department of Wildlife and Fisheries can continue to meet the challenges and demands of our future. We need your help.

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LOUISIANA
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NUTRIENT ENRICHMENT:

Too much of a good thing?

The Gulf of Mexico receives drainage from nearly 60 percent of the continental United States. Nearly half of the country's population lives in the drainage area. The Gulf's drainage basin includes three-fourths of the farms and ranches and almost 80 percent of the cropland.

BY ROBERT FRITCHEY

Phytoplankton are tiny, single-celled plants that color Louisiana's salty waters the murky green that timid bathers hate and that fishermen love. Phytoplankton help make these waters productive. Menhaden, for instance, feed on phytoplankton: commercial fishermen land more than one billion pounds of pogies each year. The wriggling larvae of mosquitoes strain the water for phytoplankton; minnows in the marsh live on mosquito larvae. Shrimp feed on small organisms that feed on phytoplankton; the state's shrimp harvest is the largest in the nation. Finfish such as redfish, spotted seatrout and spanish mackerel feed on menhaden, minnows and shrimp.

Like other plants phytoplankton need nutrients to grow. But sometimes you can have too much of a good thing. Draining into the Gulf are far more nutrients than it needs.

There are more than a dozen nutrients essential to all life forms ranging from bacteria to man. Nitrogen and phosphorus are two of these. They are needed to maintain the Gulf's productivity of fish, shrimp, crabs and other economically important aquatic organisms - but they are needed in lesser amounts than the estimated 891,974 tons of nitrogen and the 221,526 tons of phosphorus that enter the Gulf each year.

Too many nutrients may lead to the depletion of oxygen in the water, either killing marine organisms outright or, at the least, reducing the area of suitable fishery habitat. The most dramatic manifestation of nutrient enrichment in the Gulf is the "dead zone," an area of oxygen-depleted bottom water that occurs seasonally off the Louisiana and Texas coasts. Though it changes in location and size, the dead zone remains extensive, covering up to 3,000 or 4,000 square miles. Extending from the Mississippi River delta westward into Texas waters, the low oxygen conditions persist from June through August but can occur as early as April and last as late as October.

During this time, the dissolved oxygen content of bottom waters becomes so depleted that organisms either leave or die. In some cases, the oxygen-deficient water may cause large fish kills, such as the one that put thousands of dead fish on beaches along the southeastern coast of Louisiana in the summer of 1990.

"What probably happened," says Nancy Rabalais, associate professor at Louisiana Universities Marine Consortium in Chauvin, "is that a mass of oxygen-depleted water, combined with hydrogen sulfide, got pushed inshore, trapping a lot of organisms." The dead zone, adds Rabalais, "sloshes around, moving inshore and offshore according to the wind and currents."

The combined flows from the Mississippi and the Atchafalaya rivers carry more than 70 percent of the total nitrogen and phosphorus that enter the Gulf from all U.S. sources. As currents carry this nutrient-rich river water westward along the Louisiana and Texas continental shelf, phytoplankton growth explodes. As these microscopic plants die, they sink to the bottom.

Slightly larger organisms, "zooplankton," graze on the blooming phytoplankton. As they feed they release fecal pellets that sink to the bottom. When the zooplankton die, they too sink.

As these organic materials accumulate on the bottom, they are fed upon by bacteria that consume oxygen in the process.

During the relatively calm summer months, little mixing occurs between the layer of fresh, less dense river water that overlays the heavier, saltier water on the bottom. With bacteria using up oxygen faster than it can be replaced from the surface layer, normally productive bottom becomes a barren wasteland.

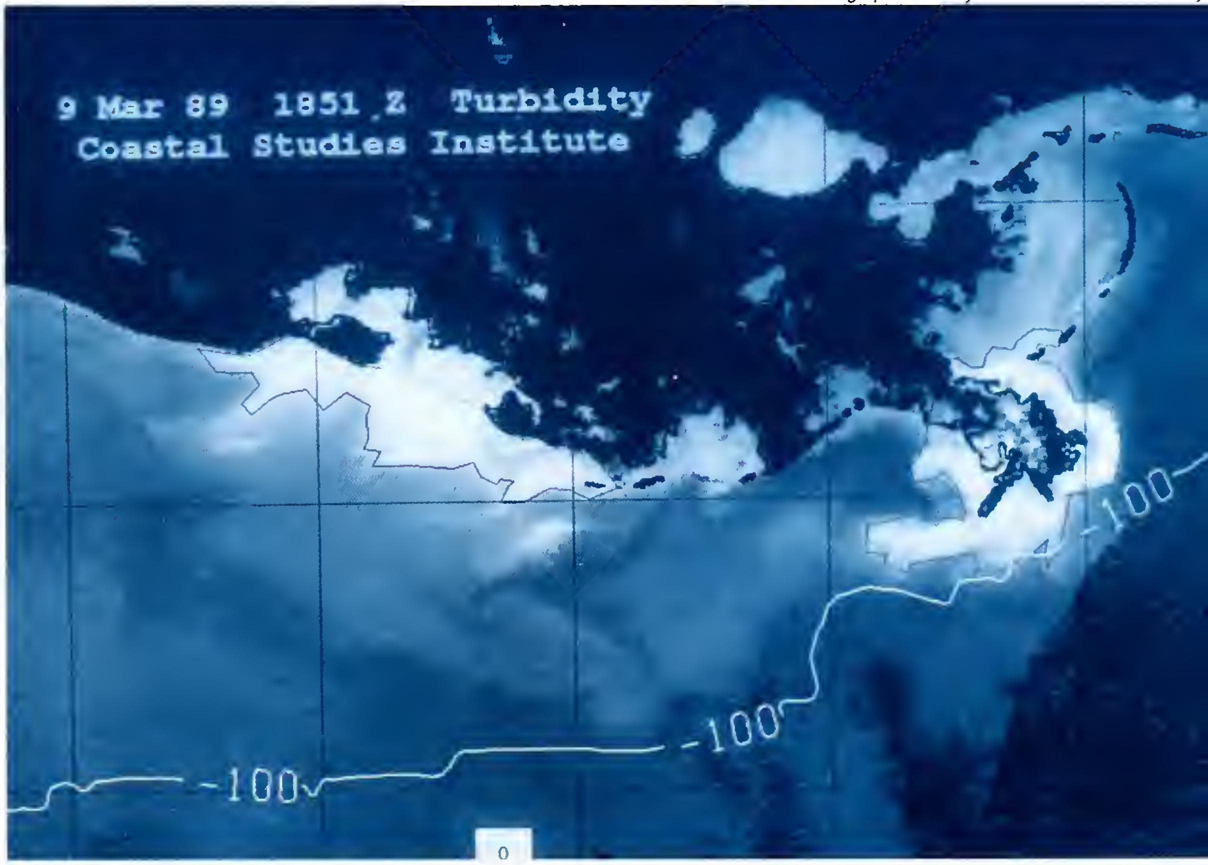
The Gulf and river waters remain stratified through the summer and into the fall, when tropical storms or hurricanes mix the water column and re-aerate the bottom waters. Later in the year, similar mixing results from thermal cooling of the water column and winds generated from cold fronts.

Though nutrient enrichment is primarily responsible for oxygen depletion, there are other factors. Rabalais, who studies how the water quality of the Mississippi River has been changing over the years, notes that the amount of sediment has decreased, primarily as a result of dams and reservoirs built in the upper regions of the watershed and of farming practices that reduce erosion. Clearer waters allow more sunshine to penetrate the depths, enhancing phytoplankton growth in the nearshore Gulf, she says.

Excess levels of nitrogen, phosphorus and other nutrients come from city sewage treatment plants, failed individual septic tanks, industrial operations, over-fertilization of golf courses, homeowners' use of phosphate detergents and over-fertilization of lawns and

The satellite image below shows the discharge of the Mississippi and Atchafalaya rivers within the 100 meter bathymetric contour. The brighter blue tones represent higher concentrations of suspended sediment.

Image provided by Louisiana State University



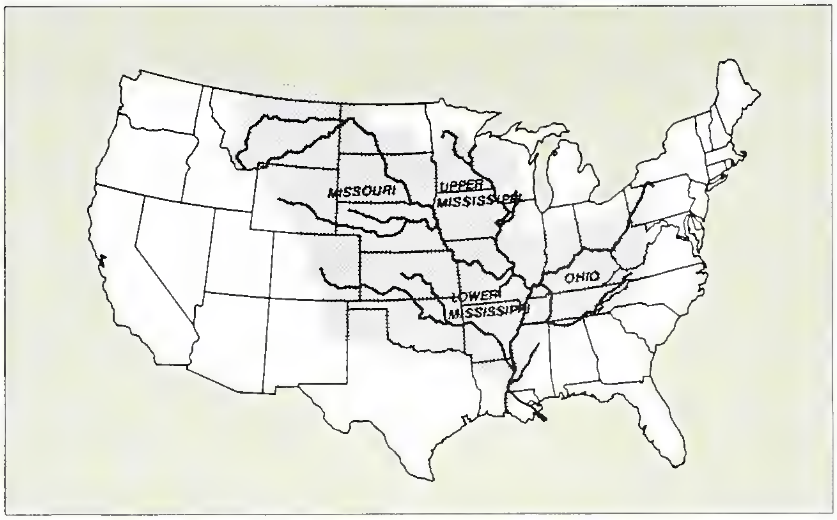
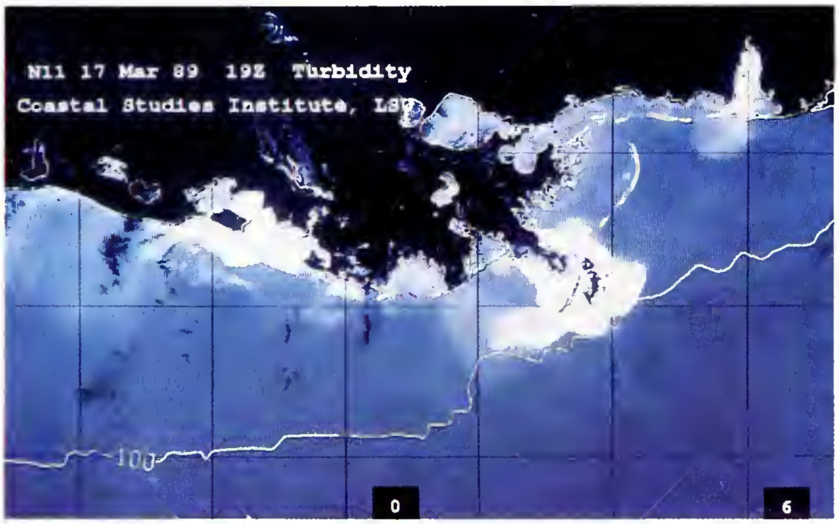


Illustration courtesy of *National Fisherman*

Ninety percent of the freshwater inflow into the Gulf comes from as far west as Colorado, as far north as Canada and as far east as Maryland.



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The satellite image above was taken eight days after the image on page 5. Notice the increase in suspended sediments.

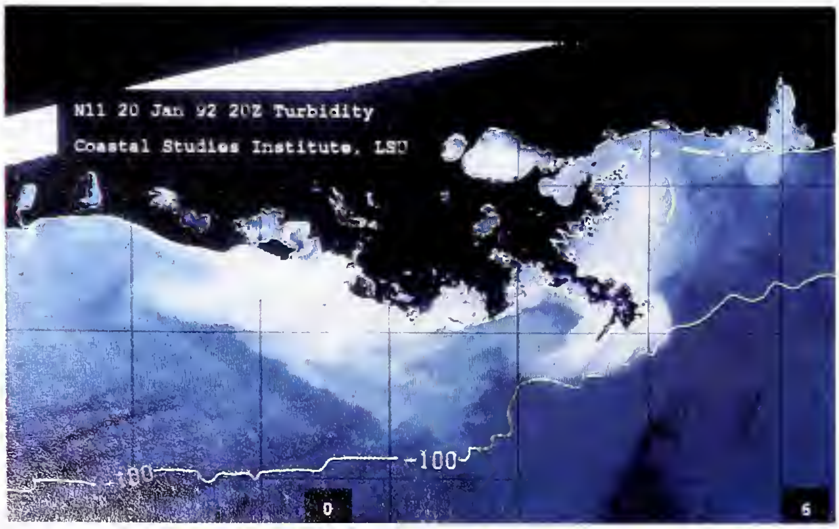


Image provided by Louisiana State University

Aerial images are important for coastal studies. They provide clear information on changes along the coastline over a period of years. The above image was taken in January 1992.

gardens. Primarily, though, nutrients come from farmlands, says Dugan Sabins, who is with the Office of Water Resources at the Louisiana Department of Environmental Quality (DEQ). The culprits are the application of excessive fertilizer to crops or runoff from operations where animals are concentrated, such as poultry farms, dairy and swine herds, feed lots and even the huge catfish aquaculture operations in the Yazoo delta.

Sources of nitrates and phosphorus from agricultural runoff in the Mississippi River watershed have increased with the growing use of inorganic fertilizers in the United States since 1950. Nitrate concentrations in the Mississippi are double the levels measured in the 1950s. Phosphorus concentrations in the river also have increased.

Nutrients not only stimulate the growth of phytoplankton, producing fodder for oxygen-consuming bacteria; they may also contribute to blooms of noxious algae, some of which are more commonly known as red or brown tides. Toxic red tides have led to fish kills in the Gulf. They also affect the marketability and, on occasion, the health of oysters.

In addition to killing marine organisms outright, noxious algal blooms may also destroy fishery habitat by killing submerged aquatic vegetation. Because seagrasses need sunlight to grow, water clouded by noxious algal blooms can shade grass beds until they die. Excessive nutrients also may cause blooms of an epiphytic algae that grows on the seagrass itself, also shading it out.

According to Rabalais, there is not enough historical data to prove a direct relationship between noxious algal blooms and nutrient imbalances in the Gulf, yet the connection has been observed in other bodies of water.

Ninety percent of the freshwater inflow into the Gulf is from the Mississippi and Atchafalaya rivers; drainage to these rivers extends as far west as the top of the Rocky Mountains in Colorado, as far north as Alberta, Canada, and as far east as Cumberland, Maryland.

The Gulf's drainage basin includes nearly 60 percent of the land area of the continental United States. Nearly half of the population of the United States lives in the drainage area. Three-fourths of the land in farms and ranches is in the drainage basin and almost 80 percent of the cropland.

Along with this extensive agriculture, there are hundreds of cities and thousands of industries. All are putting nutrients into water that eventually flows into the Gulf of Mexico.

Over enrichment is caused not only by activities along the coast but also by those of Iowa farmers, Pennsylvania steel mills, urban residents in cities such as Indianapolis, Louisville, St. Louis and Minneapolis, and suburban homeowners in Indiana. In order to protect the Gulf, plans must be developed for influencing their behavior.

Large-scale water management plans have been devised for other parts of the U.S., such as Long Island Sound, the Gulf of Maine and the Chesapeake Bay.

"We're working on an action plan, but we're not as far along as Chesapeake Bay. They've got at least ten years on us," says Kenneth Blan, Soil Conservation Service (SCS) representative to the Gulf of Mexico Program. The multiagency Gulf of Mexico Program, led by the Environmental Protection Agency, should have an action plan completed within the next year or two, according to Blan, who is headquartered at the Stennis Space Center in Bay St. Louis, Mississippi.

"We have identified about 12 specific nutrient sources and established demonstration projects to address several of these. Not only does this give us experience in the real world but, when the action plan is finalized, we'll have concrete solutions to point to," he says.

One project underway in Louisiana evaluates the effectiveness of a public education campaign regarding phosphate detergents. The tri-parish pilot program, conducted by the Louisiana Cooperative Extension Service, LSU Agricultural Center, is taking place in Lafourche, St. Tammany and Caddo parishes.

First, volunteers from groups like the 4-H Club are trained. Then they go into the supermarkets where they study consumers' buying habits and count the number of phosphate detergents on the shelves. When the educational campaign is completed, the volunteers will return to the supermarkets to evaluate its success. "It's our contention that most people will chose phosphate-free detergents once they realize their benefit. And public buying pressure will force those that contain phosphates off the shelves," says Kenneth Blan.

Phosphate detergents have been banned outright in some states but, says program director Dr. Evva Wilson, "We don't want to do that in Louisiana because this is an agricultural state." Not only do phosphates rid clothing of many pesticides, they are effective in cleaning garments that contain high levels of bacteria, such as diapers and those worn by dairy workers and restaurant workers. Phosphates are also needed in regions where minerals such as iron or magnesium make the water hard, which includes much of north Louisiana.

"In some areas where phosphates were banned, they had to add other chemicals to kill the bacteria," says Wilson. "Then they get into the water, so you're really not gaining anything.

"Hopefully," adds Wilson, "our program will equip consumers with the knowledge they need to enable them to decide which detergents are both safe for the environment and effective in cleaning the family laundry."

With grants from the Gulf of Mexico Program and the Department of Environmental Quality's Office of Water Resources, the Cooperative Extension Service has produced educational brochures as well as a video that is being shown in stores where detergents are being sold. A longer educational video is being used to train volunteers around the state. "Our home economist in each parish is training volunteers who then go out to educate consumers," Wilson concluded.

Another demonstration project, conducted by the SCS, USDA, is evaluating the effectiveness of artificially constructed wetlands in reducing concentrations of nutrients in animal wastes. Animal waste from concentrated operations such as dairies, poultry houses, hog operations, and feed lots may find its way into the Gulf from sources far up river.

Waste from a dairy herd near Newton, Mississippi flows first into an anaerobic lagoon, where a certain percentage of nutrients is removed by anaerobic bacteria. The waste then flows to a second, shallower lagoon where aerobic bacteria remove more. While most of the solid waste settles in these lagoons, waste water is channeled through a series of plots that are planted with wetland vegetation such as cattails or maiden cane.

"We know the concentrations as they enter," says Lon Strong, SCS Water Quality Coordinator. "By testing them as they exit, we find that the plants are removing 70 to 90 percent of the oxygen-depleting substances."

At 615,000 square miles, the Gulf of Mexico is the world's ninth largest body of water. But like the Mediterranean and other seas, it is virtually an enclosed basin. Because of its limited exchange of water with the Atlantic, what drains into the Gulf tends to stay there. And draining into the Gulf are far more nutrients than needed. ■

LOUISIANA'S
Electric Fishes

The Gulf of Mexico offers a variety of fish species for the sportsman. Those species include five electric fishes that are caught off the coast of Louisiana. A real shock for the unsuspecting fisherman.

BY ROBERT L. ANCELET, CLARENCE LUQUET & CHUCK MANCUSO

One of the many thrills associated with fishing in the mysterious waters of the Gulf of Mexico is the constant potential of landing strange, and even exotic, forms of sea life. Identifying unusual catches can produce surprises ranging from amusement to a real shock.

Modern fishes have developed into an array of diverse species, some with rather remarkable specializations. Fish are known to have developed venomous spines, poisonous flesh, poisonous skin, bony armor, lungs, bacterial luminescence, photophore luminescence, cryptic coloration, disruptive coloration, mimicry, barbels, feeding adaptations, and ... electric organs. Although many of these specializations appear in other animals, only fishes are known to have organs capable of generating an electric current sufficient in magnitude to affect their immediate surroundings. This unique specialization is utilized for purposes of attack or defense as well as for navigation. These fishes can also deliberately regulate the strength of the electric charge delivered. Weaker shocks serve to dissuade would-be attackers, while strong shocks incapacitate or even kill prey or enemies.

The independent development of electric

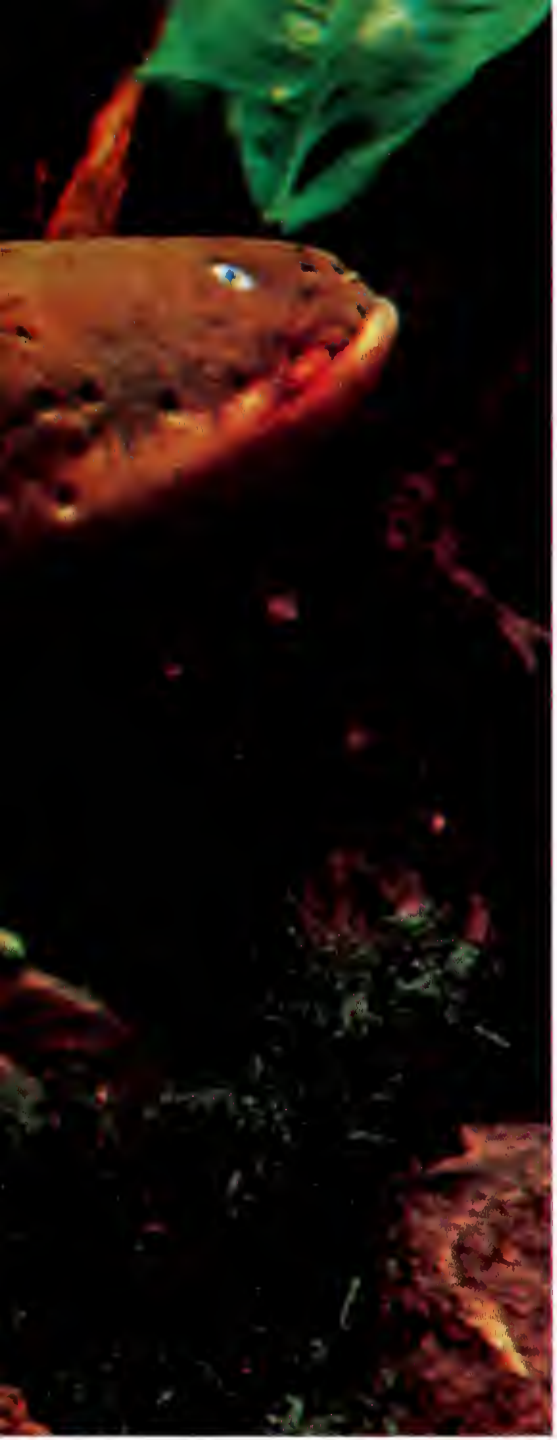


Photo courtesy of The Audubon Institute

organs in unrelated fishes was enigmatic to early observers. It was puzzling to observe electric species among the ancient cartilaginous fishes, Elasmobranchs, as well as the modern bony fishes, Teleosts. Until recently, primitive, jawless Ostracoderms of the class Cephalaspides were believed to have possessed electric organs. Today, there are about 250 species of electric fishes that include the following: skates and rays, ray-like torpedo fishes, stargazers, the South American knife fishes and electric eel, and the African electric catfish.

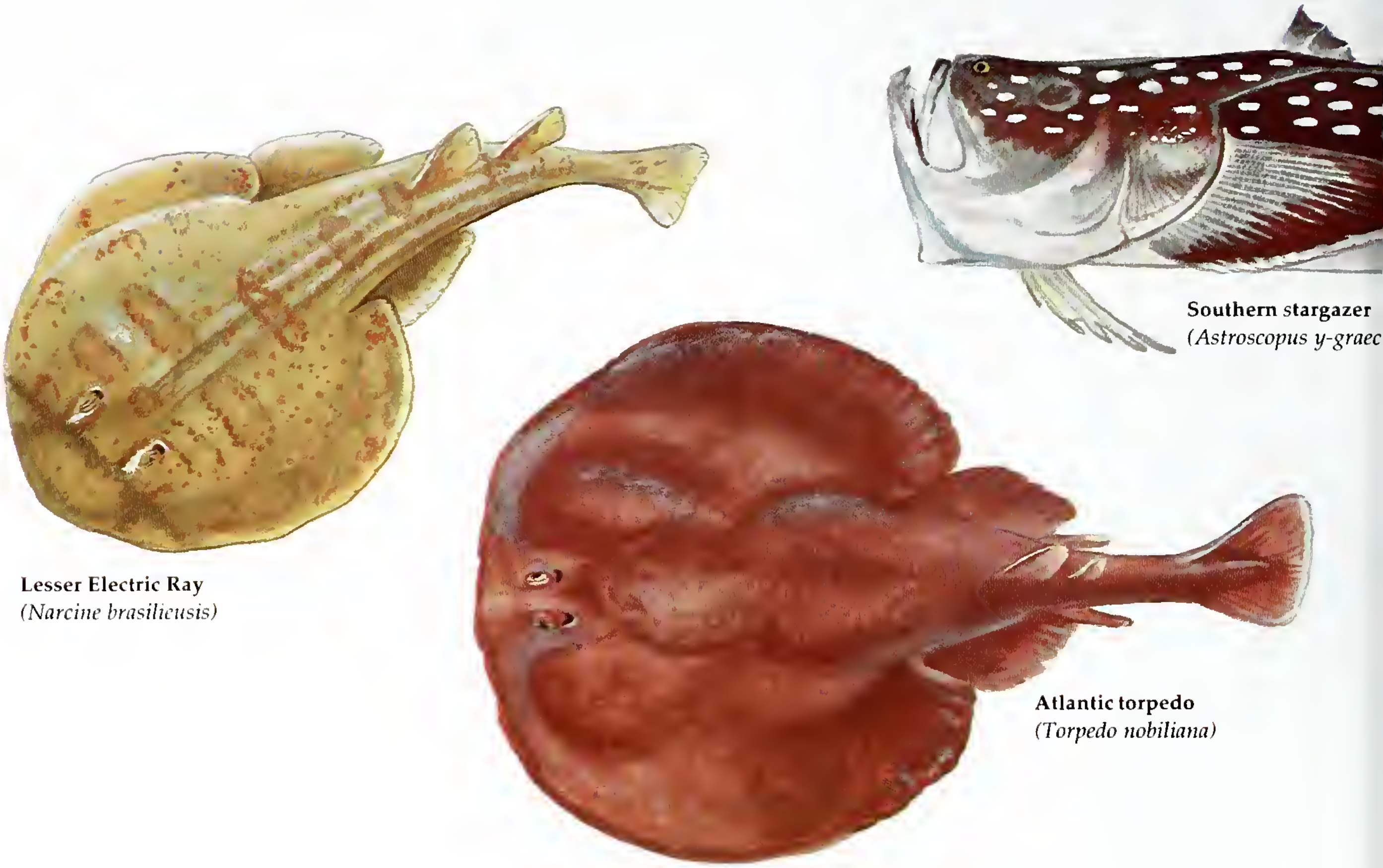
In Louisiana waters: the lesser electric ray, *Narcine brasiliensis*; the Atlantic torpedo, *Torpedo nobiliana*; the skates, *Raja spp.*; and the southern stargazer, *Astroscopus y-graecum*, possess electric organs. All of these fish are found in the nearshore or offshore marine environment of the Gulf of Mexico.

The electric organs are composed of modified striated muscle cells, electroplaques, capable of producing, storing, and discharging electrical potential. These cells originate from different parts of the body in different species - the upper body and tail musculature in the electric eel, hyobranchial muscles in the electric rays, and eye muscles in the stargazers. This is an example of convergent evolution, where electric organs have evolved from muscles in different parts of the body among divergent groups of fishes.

The electroplaque arrangements and generating mechanisms differ between the marine fishes and the freshwater Amazon electric eel, *Electrophorus*. The short but numerous vertical electroplaque columns of the marine electric fishes are arranged in parallel as opposed to the series arrangement of the numerous electroplaques in the lengthy columns of the electric eel. The results of these arrangements are: high amperage in the marine electric fishes, and high voltage in the freshwater electric eel. These mechanisms represent adaptations to different environments. High voltage necessary to overcome the high resistance of freshwater, and high amperage in the lower resistance of salt water. The electric eel is capable of generating more than 500 volts, while the greater electric ray, *Torpedo nobiliana*, can produce a current of 220 volts at 50 amperes, enough to electrocute a large fish or incapacitate a man. The lesser electric ray, *Narcine brasiliensis*, is capable of producing a current of 37 volts.

The impulse mechanism of an electroplaque is similar to a typical nerve cell. The membranes are selectively permeable to potassium ions and negative ions, while excluding sodium ions and positive ions. The inside of the resting electroplaque's membrane is negative, while the outside is positive, thus creating an electrical potential. When stimulated, the nerve impulse changes the permeability of the membrane permitting the sodium ions and positive ions to rush inside the electroplaque, depolarizing it and sending the impulse to the next electroplaque. Each electroplaque of *Torpedo*, *Narcine*, and *Astroscopus* puts out between 50 and 80 millivolts. With the electroplaques facing the same

The Amazon electric eel (photo at left) can generate a shock of more than 500 volts. This is enough to electrocute a large fish or incapacitate a man.



Southern stargazer
(Astroscopus y-graec

Lesser Electric Ray
(Narcine brasiliensis)

Atlantic torpedo
(Torpedo nobiliana)

Illustrations by Duane Raver, Jr.

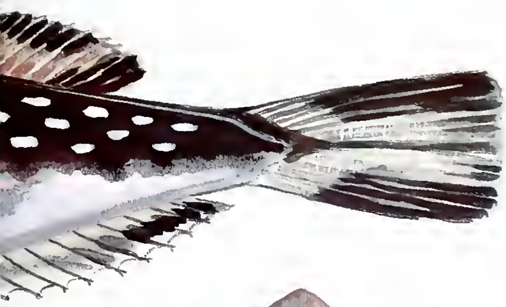
> *Although many of the specializations appear in other animals, only fishes are known to have organs capable of generating an electric current sufficient to affect their immediate surroundings.*

direction and the ventral side negative, the top surface of the organs are electro-positive. The negative lower side of the organ represents the plus or anode pole of a multiple concentration cell with a discharge from ventral to dorsal.

Skates, *Raja spp.*, possess slender masses of various lengths and thicknesses along the sides of the tail that are modified into rudimentary electric organs. Some skates have well-developed columns of electroplaques at right angles to the longitudinal axis of the tail, while others have club or cup-shaped organs with tail-like prolongations of various lengths. Shocks of approximately .5 volts per centimeter of organ length have been recorded. This weak shock, discharged only after great provocation, goes unnoticed by most fishermen.

Several species of skates are found in Louisiana offshore waters. The clearnose skate, *Raja eglanteria*, common in the northeastern Gulf, is known to possess electric organs. The spreadfin skate, *Raja olseni*, probably has electric organs similar to its close relative, the barndoor skate, *Raja laevis*, of the Atlantic Coast. *R. olseni* is a small skate (20 inches), while the clearnose skate, *R. eglanteria*, can reach three feet. These rays, resembling stingrays without spines are found from deep offshore waters to nearshore shallow waters where they feed on fish and shellfish.

The electric rays are dorso-ventrally compressed fishes with relatively large tails when compared to other rays. The large and powerful electric organs (one sixth of the total mass) are situated in the "wings" on either side of the disc-like body. A special lobe of the brain, "lobus electricus" sends out five large nerves that branch several times, eventually forming fine fibrils that innervate the ventral connective tissue wall of each electric disc or electroplaque. These discs, clear jelly-like masses containing multinucleated cells enclosed within connective tissue compartments arranged in vertical columns, form the electric organs. These organs can contain hundreds of thousands of discs in the greater electric ray, *Torpedo nobiana*. The electric organs, situated on either side of the head at the base of the pectoral fins, form masses of large hexagonal cells visible through the skin of the lesser electric ray, *Narcine brasiliensis*. The Atlantic torpedo, *T. nobiliana*, is a large ray (to six feet) known from the northern Gulf at the edge of the continental shelf off the Mississippi River Delta, while the lesser electric ray, *N.*



Clearnose skate
(Raja eglanteria)

Amazon electric eel
(Electrophorus)

Illustrations by Duane Raver, Jr.

brasiliensis, a much smaller ray rarely exceeding one foot, is found in both nearshore and inland waters.

Equipped with crushing teeth, the electric rays are bottom dwelling fish feeding primarily on shellfish. There is little chance that a recreational angler would encounter an electric ray, although they may appear in bottom trawl catches.

The southern stargazer, *Astroscopus y-graecum*, is a robust, slow moving, burrowing fish with a large head. This fish, usually less than one foot in length, possesses close set eyes located on the flattened upper surface of the head, hence the name, stargazer. These fish bury themselves in the sediment with only their eyes protruding, where they wait for their prey. The mouth is almost vertical. The body is blue gray or brown with many white spots and some mottling above and white below. *Astroscopus* produces a mild electric shock utilizing two kidney-shaped organs located in pouches behind the eyes.

Stargazers are sometimes caught by rod and reel anglers as well as trawlers. Unsuspecting fishermen may be shocked just to learn what they have landed.

In order to experience a shock, one must complete a circuit by either making direct or indirect contact with the fish at two points, i.e., by touching the fish at two points, or by being in the water at a distance of not more than eight inches from the fish during discharge.

There must be a refractory period after an electric organ is discharged. Repeated use of the organ exhausts the fish and a period of repose is necessary for recuperation. In one case, no more than two shocks could be provoked from a stargazer while removing a hook.

A stargazer being held in an aquarium at the marine laboratory at Grand Terre electrocuted a brown shrimp that provoked it by walking on it. Since the stargazer did not consume the shrimp, this was not considered a feeding response.

Although not common, a chance encounter with an electric fish in Louisiana could occur. Such an occurrence is more likely with a nearshore or inshore species. Fortunately, these species produce only a mild electric current but, if all else is going less than well, an unexpected shock from one of these fish could certainly add to the misery of a bad fishing trip. ■

Electric fishes have been documented for centuries. Puzzling and intriguing, these fish prompted ancient scientists to explore their means of electrical currents.

REBIRTH BY FIRE

STORY AND PHOTOGRAPHY BY SARA ANN HARRIS

Flames raced up the tall dry bush, transforming it instantly into a crackling flare of branches. Rich black smoke billowed from the illusive, deep orangeness. The fire thrashed about as gusts of wind slapped it, the gaseous substance mysteriously shaping and reshaping as its hot breath swept over the onlookers in the woods.

We can't help but be struck by the elemental, even primordial, forces of fire. It mesmerizes and frightens us. But our instinctive fear of the raging forest fire has prejudiced our understanding of the important function of fire in the forest. Fire is critical to the basic vitality of certain forests. Simply put, some forests can not survive without it.

Longleaf pine flatwood savannahs are particularly dependent on a regime of regular burning. By definition, a savannah is an expanse of grassland, interspersed with trees. A flatwood is a relatively level wooded area, in this case characterized by very slow drainage. Longleaf pine flatwood savannahs are significant natural wetlands, indigenous to the outer Atlantic regions and Gulf Coastal Plains of the southeastern United States.

The open, park-like character of the original savannahs was principally attributable to frequent, lightning-started, ground fires, or fires that only burn the understory. These fires interacted with soil conditions and a seasonally high water table to restrict the development of most trees and shrubs other than scattered longleaf pines. This created a prominence of herbaceous plants, mostly grasses and sedges, in the understory.

Among other things, fire stimulates flowering and fruit/seed production of savannah herbs and pyrophytic shrubs. It deters invasion by fire-intolerant woody vegetation and exposes mineral soil enabling seedlings of indigenous herbs and longleaf pine to become established. An open pine flatwood savannah can grow into a woody thicket in as little as five years in the absence of fire. Eventually, the longleaf pines themselves will disappear as the forest becomes too thick for longleaf seedlings to establish and grow.

Lightning historically was the primary source for ignition of naturally occurring ground fires. Scientists propose that the lightning struck either tall or isolated longleaf pine trees or standing dead longleafs.

The longleaf pine tree itself is one of the best fire-adapted species in North America and probably owes its existence to fire. The seedlings grow rapidly into a low, stocky grass stage. The tufted, long needles protect the terminal bud of the sapling from heat damage during fires. In frequently burned sites, saplings grow rapidly out of the grass stage within three to five years. As an additional adaptation to fire, the bark of saplings and trees is thick and fire resistant. In addition, all lateral branches of mature trees grow far above the ground, limiting the possibility that ground fires will turn into damaging crown fires.

The longleaf pine flatwood savannah is a very significant native ecosystem in Louisiana. It originally occurred in southeast Louisiana in Tangipahoa, Washington and St. Tammany parishes and in southwest Louisiana in Beauregard, Allen, Evangeline and Calcasieu parishes. Landscape alterations over the last 100 years have disturbed the natural order of these forests and restricted the occurrence of naturally burning fires. Department of Wildlife and Fisheries forest habitat experts estimate that there has been a 90 percent loss of longleaf pine savannahs in Louisiana and have now entered the habitat on the state list of rare natural communities.

Via the efforts of the Wildlife Division's Natural Heritage Program, the department recently purchased an excellent 796-acre remnant of longleaf pine savannah. Lake Ramsay Savannah Wildlife Management Area is located in St. Tammany Parish just east of the Tchefuncte River. "Although the area has suffered some alterations," explained Heritage biologist Latimore Smith, "it is still a fantastic example of a longleaf pine savannah. We estimate that 99 percent of the original herbaceous plants are still present." To date, the Heritage biologists have documented the occurrence of 18 species of plants rare to Louisiana on Lake Ramsay WMA.

Controlled burns, or prescribed burns, are carefully formulated forest management plans which simulate the natural occurrence of fire on a specific habitat. The Heritage staff has established a plan to restore the natural structure of this longleaf pine savannah by using that all important and powerful element -- fire - as a management tool. In March 1993, the Heritage staff, with the assistance of the department's Forestry Section, began prescribed burning on the area. In the first year, the scientists will conduct carefully controlled fires across all of the pine savannah habitat, or approximately 80 percent of the WMA. The plan is to then conduct burns on randomly selected units on the WMA each year resulting in one burn approximately every three years on any given unit.

Fire is a long established management tool used by the National Forest Service and by LDWF in managing state land for wildlife. But that in no way implies that it can be handled matter-of-factly. The prescribed burn crew for Lake Ramsay Savannah WMA, led by Smith, included Bill Vermillion, Julia Larke and Steve Shively of the Heritage Program and James Ernst, Edward Trahan, and Marc Dupuy of the LDWF Forestry Section, along with a handful of volunteers. The crew complied strictly with established and proven burn safety procedures.

In this year's burns, Smith consulted closely with the State Office of Forestry in making decisions on which days to conduct burns. In the best weather scenario, a steady, light wind lifts and disperses smoke. Relative humidity should be 35 percent or higher in order to subdue airborne sparks and curtail fire jumps. And, of course, burns can not be conducted in the rain.

"Once you are reasonably sure the weather is working with you and not against you, you can proceed," Smith explained. Roads, creek bottoms and canals were used as fire breaks. On the first burn day, Monday, March 8, the crew set up a back-fire along the a border of a selected 40-acre block. In a back-fire, the wind and the fuel are on the same side of the fire. The wind gently blows the fire away from the fuel, thus maintaining a slow steady burn.

As the fire backed into the unit, Smith gave the command to start flank fires along the two perpendicular borders. The crew monitored the fire closely, flappers and hoses in hand, ready to douse any fire jump. All proceeded well and a head fire was ignited on the

LDWF forester James Ernst ignites a back-fire. Such a burn backs into the designated fire block; its progress is controlled by wind on the backside.

Controlled burns in longleaf pine forests clear away encroaching woody vegetation and re-establish a natural open forest floor, while not damaging the trees.

final border of the block. In a head fire, the wind blows the flames into the fuel and rapidly accelerates the burn. In making this last call, it was very important that Smith take into account the possibility of convection currents forming in the center of the fire circle. These can create a terrific sucking action and devil winds, as they are called, which heave burning embers through the air and out of the designated burn area.

"Given the proper care, the land will heal itself over time," Smith explained. "We plan to provide the required burning and to strictly prohibit all mechanical activity on the property. We will also plant longleaf pine seedlings where few or no trees currently occur. As the longleaf pine savannah habitat is encouraged, we expect it to take off.

"No one should be fooled into thinking that fire is a quick fix for previous damage to this land," he added. "We are looking at decades and decades of burning and other habitat restoration efforts to rejuvenate the natural character of this savannah." ■

Keeper of the Gentle Giant

Louisiana is flush with nongame species of animals including large and small mammals, reptiles, fish, amphibians and a plethora of birds. Biologists with the Department of Wildlife and Fisheries, Wildlife Division explain that 87 percent of the 895 vertebrate species native to Louisiana are nongame; that is, they are not hunted, fished or trapped. Of these, six are extinct and 22 are currently listed as threatened or endangered.

Louisiana's rich diversity of distinctive ecosystems includes longleaf pine uplands, mixed hardwood forests, cypress/tupelo swamps, remnants of southwest prairie and longleaf pine flatwood savannahs, and several types of marsh. Within these native communities, approximately 2,500 different species of plants occur. Hundreds are considered rare, threatened or endangered.

A team of five biologists with the Wildlife Division's Natural Heritage Program are the designated stewards of nongame species, natural habitats, and plants -- an unwieldy and extensive body of natural resources.

The section was fully incorporated into the Louisiana Department of Wildlife and Fisheries in 1986. In May of 1992, the LDWF Game Division was expanded and renamed the Wildlife Division to incorporate the nongame, natural community, and plant work of the Heritage Program.

One of the fundamental functions of the Heritage Program is to establish a central and comprehensive repository for conservation information. Heritage staff have surveyed more than 1,800 sites for the presence of rare, threatened and endangered species and outstanding examples of native ecosystems. The Heritage Program now maintains nearly 4,000 records of rare, threatened, or endangered species and of significant natural areas. Files are carefully maintained in order to provide easy access to policy makers in the state system, as well as scientific leaders in the private sector. Applications of the data base across the state have been used in virtually every aspect of biological conservation.

Fishing Lake Concordia

LDWF file photo

BY EDWIN A. VICE

Leave your spinner bait box in your car, load your tackle boxes of top water plugs, buzz baits, Rat-L-Traps and artificial worms in the boat and we'll be on our way." With these words, well-known guide and professional bass angler Eddie Roberts of Vidalia, Louisiana, introduced me to bass fishing on Lake Concordia.

I spent the night before the fishing trip as a guest of Vic Bongi at the Sportsman's Haven on the lake. Vic had explained that the thunderstorm the day before my arrival dumped more than five inches of rain and raised the water level of the lake. With all the rain, Bongi felt my bass fishing the next day might not live up to the lake's reputation as one of the best in Louisiana.

"The really hot bream fishing is just getting started," commented Bongi. "April and May are really explosive months for the pan fish."

Before the sun managed to show itself, however, a bass slammed my buzz bait and knocked it two feet from where it had been hit on the surface of the water and Roberts boated a bass that measured just shy of nineteen inches. The bass was returned to the water immediately.

As a Trophy Lake in the Louisiana Black Bass Management Program, the protected slot size is 15 to 19 inches. Only eight bass may be taken in one day and only two bass more than 19 inches can be part of the creel limit.

The first early-morning attacks on the lures continued all day and the majority of the bass that were caught were at the top of the protected slot size. The lures that produced the bass feeding frenzy and the methods of presenting the lures were new to me and I am sure it will be a shock to many experienced anglers who fish anywhere in Louisiana. But first, how did Lake Concordia arrive at the condition it is in today?

The lake is a Mississippi River oxbow that is approximately 1,100 acres in size. It is located near Ferriday, Louisiana. It was cut off from the

Photo by Edwin Vice

LDWF file photo

The early morning attacks on the lures continued throughout the day. The majority of the bass were at the top of the protected slot size.

Mississippi before recorded history, and was formed by the same river changes that formed the other lakes in the area, including Lake St. John and Old River.

With the isolation of the lake from the Mississippi River, its water level stabilized and it became an excellent breeding ground for bass and bream. There are dense growths of coontail near the shorelines and on the north flats.

According to Mike Wood, largemouth bass project leader for the Louisiana Department of Wildlife and Fisheries, the Florida largemouth bass stocking of the lake started in 1989 with 10,000 fingerlings. In 1990, 100,732 additional fingerlings were added, another 100,000 in 1991 and 101,894 in 1992. To offer a forage base for the bass, the large natural population of bluegill is enhanced by the presence of threadfin shad. From 1977 to the present, 10,000 hybrid striped bass have been introduced each year.

While the lake has always had a high production of bass in the 4- to 5-pound range, the introduction of the Florida Bass has brought it up to the Trophy Lake status the LDWF visualized with the Black Bass Management Program. According to Wood, "The Louisiana Outdoor Writers Association will be receiving record applications for bass in two or three years from Lake Concordia."

Knowing that the fish are present in great numbers in this lake is a drawing card for anglers of bass, bream and stripers, but catching the fish, regardless of the species, can prove disappointing if the fisherman is unfamiliar with the lake and the methods of catching fish used by the experts.

The water is extremely clear. Even after a five-inch rain the day before my arrival, the lake maintained visibility to a depth of almost two and one-half feet. As every angler knows, that spells long distance casts.

There are numerous boat houses and piers along the western side of the lake. Anglers are well aware of the nature of fish to hold to such structures and the piers and boat houses are heavily fished. Bass and bream are taken from these areas, but Roberts introduced me to a trick that was as much of a surprise to me as it will to you.

Roberts used one bait almost exclusively the entire day. He used a series 1400 Poe's Jackpot top-water lure. The bait consistently brought fish to the surface and produced some explosive strikes. While every angler pays attention to the pilings along the piers, most ignore the bulkheads and seawalls along the western bank of the lake. This is the area where Roberts catches the majority of his fish.

He will approach a seawall and maneuver his boat parallel to it, making long casts in front of the boat. He twitches the bait just inches from, then parallel to, the seawall. This action, time after time, produced bass.

He also uses the same lure in the trees along the same western edge of the lake. Even though the best bream fishing month is May, a small spinner bait with a black and chartreuse twisting grub produced some respectable size bluegill.

Roberts has been fishing professionally for 12 years and guides on the lake year around. As with all professional anglers, he is sponsored by some of the big names in fishing equipment manufacturers.

Each month calls for different lures, tactics and areas to be fished.

This trophy lake is not just a summer-time fishing spot. According to Roberts, the lake produces great catches of fish from January through December. From one of the top fishing guides on Lake Concordia, here is the when-to, where-to and how-to for fishing the lake:

January calls for "jig and pig" type lures in four to five feet of water for bass. Around the Blue Hole area, where the water depth is more than sixty feet, stripers will hit the Rat-L-Trap, deep diving crank baits and, the all-time favorite, live shad and shiners.

In February, if the winter is mild, the bass will start to spawn. Top water lures, lizards and spinner baits along the coontail moss beds, create some super fishing action.

During March, the bass are generally on the spawning beds and Roberts uses lizards and rattling baits along the seawalls and piers and at either end of the lake on the flats.

April through May starts the great top water lure action early and late in the day and bream pattern crank baits and rattle baits next to piers and the seawalls, as well as yo-yo action of the lures on the flats, produce great stringers.

From April to the end of May, the lake is thick with pan fish anglers from many southern states and there isn't a spot on the lake that won't produce hard hitting bream when a fat cricket is offered under a cork. The small spinner baits in black and chartreuse usually produce the largest keepers.

June, July, August and September will find the water clarity at its best and the bass fishing gets tougher. Six-inch worms and deep-diving crank baits are the best bass producers when fished in eight to ten feet of water on clear days. If the weather is overcast, top water lures become the best bass weapon.

Once the early cold fronts start to arrive in October, Roberts will use the Rat-L-Traps or jigs and spinners with craw-worm trailers over the flats and piers as well as the seawalls.

The best months to fish according to Roberts, are November, December and January. Jigs, "traps," and top water lures in the mid-lake area as well as the flats on either end keep his clients coming back.

"It is not unusual," he noted, "to approach the Blue Hole during the winter months and find anywhere from five to 15 boats lined up behind one another making slow circles, trolling around the edges of the deeper water." The stripers will hit the lures and live bait offerings and there are many in the 12- to 14-pound range.

Before sunrise on the early June morning when I fished with Roberts, the stripers were coming to the top of the Blue Hole and slamming the shad at the surface.

In less than seven hours, I was introduced to Lake Concordia fishing from the southern flats to the northern flats and all of the top producing points in between. The lake has very little fishing activity during the week, but on the weekends, if the weather is clear, you will generally find boats bow to stern.

What is the best kept fishing secret on Lake Concordia? If the weather is going to be heavily overcast or even a slight drizzle, the fair-weather anglers will be at home waiting for the afternoon fishing shows on television. Make sure that you are on Lake Concordia at that time. Watch for the tell-tale swirls along the piers, trees and seawalls and toss a big, ugly top-water twitcher at the spot. Give the lure a few short twitches and hang on.

Who knows? You might be the angler sending in the record fish application to the Louisiana Outdoor Writers Association. ■

Lake Concordia is a trophy lake in the Black Bass Management Plan with a protected slot size of 15 to 19 inches, a limit of eight bass per day, and no more than two over 19 inches as part of the creel limit.

LDWF file photo

HOW TO GET INTO LA.'S FISH RECORD BOOK

BY EDWIN A. VICE

Note: Edwin Vice is chairman of the Fish Record Committee with the Louisiana Outdoor Writers Association.

Record keeping for the top ten trophy fish in a number of categories that are caught in Louisiana was started almost too long ago for anyone to have a clear memory of how it all began. For decades, the records have been kept and maintained by members of the Louisiana Outdoors Writers Association. The fish records are the property of the LOWA and the general membership make the rules and regulations for both fresh and salt water species and determines the categories for the official Louisiana State Fish Records.

Changes in the rules and regulations in 1991 came about as a result of input from the Louisiana Department of Wildlife and Fisheries and the LSU Coastal Fisheries Institute. The addition of new categories and the requirement for examination of each fish by a fisheries biologist will assist in gathering scientific data on all species of game fish caught in Louisiana waters.

During the annual meeting of the Louisiana Outdoor Writers Association in April 1992, the general membership voted additional changes, including modifying the rules and regulations governing the fish records and applications for record. These changes will make it easier for the general public to get into the official Louisiana State Fish Records.

If you catch a fish that qualifies by weight for one of the top ten places in a category, the first thing you must do is decide if you are going to have it mounted or keep the fish alive and release it after weighing, photographing and having it examined by a biologist. Please consider a replica mount of your fish, especially largemouth bass. These trophy specimens are invariably female brood stock fish. The release of these record fish may help to increase the overall size of future generations of bass in Louisiana waters. The next step you must take to insure a spot in the fish record book is to contact a LDWF biologist in the area where the fish is caught (see chart). The fisheries biologist in the area will examine the fish and properly weigh, identify and measure it.

One new rule change allows fish caught on private property, such as farm ponds, to be entered in a new category. The top five fish, by weight, will be listed apart from the official standings and will not be eligible for the Fish of the Year Award, but the new category will give deserved recognition to private-water anglers and their catches.

The freshwater species categories for the private property section of the fish records are: bass, white crappie, black crappie (sac-a-lait), bluegill and redear sunfish. The standard LOWA Fish Record application is to be used for fish caught on private property and the angler must note on the application that same information.

Records for fly fishing have also been expanded to include the same species as in the standard rod and reel division. All species that are now included in the LOWA fish records are listed in the chart.

Scientific data from each record fish will be gathered from LDWF biologists and maintained by the Coastal Fisheries Institute at LSU in Baton Rouge. LDWF biologists are asked to remove the otolith from the fish during their examination and send them to Dr. Bruce Thompson at the institute.

Dr. Thompson will accurately age the fish with the otolith and will begin research on size increase versus age and other trends in record fish caught in Louisiana waters.

LDWF FISHERIES BIOLOGISTS FOR RECORD FISH VERIFICATION

Saltwater & coastal species

Area 1-Mississippi Line to MRGO
John Burden (504) 568-5891(New Orleans)
Karl Mapes (504) 568-5891(Slidell)
Area 2-MRGO to Empire
Bob Ancelet (504) 568-5688(New Orleans)
Clarence Luquet
Area 3-Empire to Bayou Lafourche
John Dameier (504) 787-2163(Grand Terre)
Mark Schexnaider
Area 4-Bayou Lafourche to Bayou Sale
Vince Guillory (504) 594-4139 (Bourg)
Marty Bourgeois
Area 5-Bayou Sale to Atchafalaya River
Gerald Adkins (504) 594-4139 (Bourg)
Steve Hein
Area 6-Atchafalaya River to Freshwater Bayou
Pete Juneau (318) 373-0032 (New Iberia)
Paul Cook
Area 7-Freshwater Bayou to Sabine Pass
Dudley Carver (318) 491-2573 (Lake Charles)
Jerry Ferguson

Inland & freshwater species

District 1-Minden Area
Parishes: Caddo, Bossier, Webster, DeSoto, Red River, Claiborne, Bienville

Charles Hoenke (318) 371-3050

District 2-Monroe Area
Parishes: Union, Lincoln, Jackson, Morehouse, Ouachita, W. Carroll, E. Carroll, Richland
Janice Little (318) 343-4044

District 3-Natchitoches Area
Parishes: Sabine, Natchitoches, Winn, Grant, Rapides
Kenneth Lantz (318) 352-2181

District 4-Ferriday Area
Parishes: Caldwell, Franklin, Madison, Tensas, LaSalle, Catahoula, Concordia
Mike Ewing (318) 757-4571

District 5-Lake Charles Area
Parishes: Vernon, Beauregard, Allen, Cameron, Calcasieu, Jeff Davis
Bobby Reed (318) 491-2575

District 6-Opelousas Area
Parishes: Avoyelles, Evangeline, St. Landry, Acadia, Upper St. Martin, Lafayette, Iberville
Bruce Davidson (318) 948-0255

District 7-Baton Rouge Area
Parishes: Point Coupee, W. & E. Feliciana, St Helena, W. & E. Baton Rouge, Ascension, Livingston, Tangipahoa, St. John, St. James
Tim Morrison (504) 765-2330

District 8-New Orleans Area
Parishes: Washington, St. Tammany, Orleans, St. Bernard, Jefferson, St. Charles, Lafourche, Plaquemines
Howard Rigillio (504) 646-6458

District 9-Baldwin Area
Parishes: Vermilion, Iberia, St. Mary, Lower St. Martin, Assumption, Terrebonne
Mike Walker (318) 828-7304

SALTWATER SPECIES
(Common name/ scientific name)

AMBERJACK (Greater)
Seriola dumerili
BARRACUDA (Great)
Sphyraena barracuda
BLACK JACK
Caranx lugubris
BLUE RUNNER (Hardtail)
Caranx crysos
BLUEFISH
Pomatomus saltatrix
BONITO (Atlantic)
Sarda
CATFISH (Gafftopsail)
Bagre marinus
CHUB (Bermuda)
Kyphosus sectatrix
COBIA
Rachycentron canadum
CREVALLE JACK
Caranx hippos
CROAKER (Atlantic)
Micropogonias undulatus
DOLPHIN
Coryphaena hippurus
DRUM (Black)
Pogonias cromis
FLOUNDER (Southern)
Paralichthys lethostigma
GROUPER (Warsaw)
Epinephelus nigritus
HORSE-EYE JACK
Caranx latus
JACK (Almaco)
Seriola rivoliana
LADYFISH
Elops saurus
LITTLE TUNNY (Bonito)
Euthynnus alletteratus
MACKEREL (King)
Scomberomorus cavalla
MACKEREL (Spanish)
Scomberomorus maculatus
MARLIN (Blue)
Makaira nigricans
MARLIN (White)
Tetrapturus albidus
POMPANO (African)
Alectis ciliaris
POMPANO (Florida)
Trachinotus carolinus
RAINBOW RUNNER
Elagatis bipinnulata
RED DRUM (Redfish)
Sciaenops ocellatus
SAILFISH
Istiophorus platypterus
SEA TROUT (Sand or White)
Cynoscion arenarius
SEA TROUT (Spotted or Speckled)
Cynoscion nebulosus
SHARK (Mako-shortfin)
Isurus oxyrinchus
SHEEPSHEAD
Archosargus probatocephalus
SNAPPER (Cubera)
Lutjanus cyanopterus
SNAPPER (Grey or Mangrove)
Lutjanus griseus
SNAPPER (Lane or Candy)
Lutjanus synagris
SNAPPER (Red)
Lutjanus campechanus
SNAPPER (Vermilion)
Rhomboplites aurorubens
SPADEFISH (Atlantic)
Chaetodipterus faber
SPEARFISH (Longbill)
Tetrapturus pfluegeri
SPOT
Leiostomus xanthurus
STINGRAY (Southern)
Dasyatis americana
SWORDFISH
Xiphias gladius
TARPON
Megalops atlanticus
TRIGGERFISH (Grey)
Balistes Capriscus
TRIPLETAIL
Lobotes surinamensis
TUNA (Blackfin)
Thunnus atlanticus
TUNA (Bluefin)
Thunnus thynnus
TUNA (Skipjack)
Katsuwonus pelamis
TUNA (Yellowfin)
Thunnus albacares
WAHOO
Acanthocybium solandri

FRESHWATER SPECIES
(Common name/scientific name)

BASS, Hybrid Striped
Morone saxatilis X Morone chrysops
BASS, Largemouth
Micropterus salmoides
BASS, Spotted
Micropterus punctulatus
BASS, Striped
Morone saxatilis
BASS, White
Morone chrysops
BLUEGILL
Lepomis macrochirus
BOWFIN (Choupiquet)
Amia calva
BUFFALO (Bigmouth)
Ictiobus cyprinellus
CARP (Common)
Cyprinus carpio
CATFISH (Blue)
Ictalurus furcatus
CATFISH (Flathead)
Pylodictis olivaris
CATFISH (Channel)
Ictalurus punctatus
CRAPPIE (Black)
Pomoxis nigromaculatus
CRAPPIE (White)
Pomoxis annularis
GAR, Alligator
Lepisosteus spatula
PICKEREL (Chain)
Esox niger
PICKEREL (Redfin)
Esox americanus
SUNFISH (Redear or Shell Cracker)
Lepomis microlophus
WARMOUTH (Goggle-eye)
Lepomis gulosus

Photo by Bill Kinn

Salt licks have become more popular over the last few deer seasons. Manufacturers heavily promote the bait. What some hunters may not realize is that deer season comes at a time when mineral requirements for deer are at their lowest.

Whitetails and Minerals

BY DAVID MORELAND

Each fall, just prior to the start of the deer season, signs advertising mineral blocks and special whitetail mineral mixtures magically appear at local feed and hardware stores. While it is legal to feed and bait deer in Louisiana, there is one slight problem with using minerals in the fall. Mineral requirements of deer in the fall and winter months are much lower than during spring (which is the peak period) and summer. Consequently hunters hoping that their mineral licks will attract "old big boy" are going to be disappointed.

Wildlife biologists have known for years that deer utilize salt. The Indians of North America also knew deer would frequent natural salt licks and they would utilize these locations as places of ambush. In the 1960s, LDWF biologists conducted a population dynamics study on the Red Dirt Wildlife Management Area (WMA) and baited their box traps with salt. They also did a test to determine the preference of deer for certain other minerals.

Hunting clubs leasing land from timber companies have no control over the timber management practices on their lease. Consequently, habitat practices available to them to improve their deer habitat are limited to food plots, supplemental feeding, and providing mineral supplements. These practices have become big business and manufacturers heavily promote and market their products. These products have been well accepted by deer hunters and the perception of their value for growing big bucks is high.

A recent study by LSU on the effects of mineral licks on deer found that deer which had mineral licks available to them were no larger than those that did not. The approximate cost, including labor, for establishing one mineral lick was $20.65. I monitored mineral licks on Pearl River WMA during the summer of 1992 and found that relatively few deer actually used a lick on a regular basis. This may explain why the effect of minerals on the overall deer herd is negligible.

One key in using mineral supplements may lie in the number of mineral sites created for deer. Most studies utilized only a small number of licks and evenly distributed them on the study area. It may be necessary to supersaturate a tract of land with mineral sites before any positive impact on the physical condition of deer will be noticed. The cost for doing this, however, may be prohibitive.

Mineral licks should be established during late winter or early spring. Bucks begin growing their new set of antlers during the spring and this is the time when minerals are needed. Peak use of mineral licks will occur at this time and will begin to wane during late summer. When the buck has finished growing his antlers and the velvet comes off he no longer needs the extra minerals since his rack is as big as it will get for the year. Minerals also are needed by does prior to and after fawning. Just like the bucks, mineral requirements decline in the fall.

Nutrient requirements, according to the book *White-Tailed Deer Ecology and Management*, of adult deer include calcium, phosphorous, sulfur, iron, copper, iodine, cobalt, manganese, selenium, chromium, fluorine, nickel, silicon, vanadium, tin, arsenic, molybdenum, sodium, chlorine, and potassium. These elements generally occur in the natural environment and the nutritional requirements of deer are usually satisfied by their daily foraging. However, if minerals are deficient, providing deer with mineral licks would give them a source for these elements.

Dr. James Kroll, a well-known deer researcher in North America, does not recommend creating licks with just regular feed salt. A pure salt block would only provide two of the required minerals. Phosphorous would be of more importance than sodium since it is a requirement for skeleton and antler development. There are many manufactured brands of mineral supplements available to choose from and most contain these important elements. Mineral blocks are available but granular minerals are probably more effective.

Mineral licks can be established in several ways. One method is to dig a hole in the ground, place a mineral block in the hole, and then finish filling the hole with loose minerals and dirt. We established mineral licks on Pearl River WMA by pouring mineralized salt on top of a hardwood stump. The mixture will spill on to the ground where it will mix with the soil. Deer will visit the lick and consume the mineralized soil or the softer decayed parts of the stump. Proof of deer utilizing a lick is evident by the appearance of ice cream-scoop-like depressions in the soil. These "scoops" are created by the incisor teeth of the lower jaw (deer don't have upper incisor teeth) as they scoop up the mineralized soil. Mineral licks also can be made by digging a large hole in the ground, filling it with rotten logs, and pouring minerals and loose-dirt on top of the logs. Mineral licks may need to be refurbished as minerals are consumed or leached out by the weather.

I do not recommend trying to hunt over a salt lick. We monitored the salt licks on Pearl River WMA with trail cameras and 99 percent of the pictures taken of the deer at the lick were at night. For those of you who may not know it, legal shooting time ends at 30 minutes after sunset! Q-beams are not an acceptable piece of equipment for deer hunters. ■

Photo by Bill Kinney

Recent studies have shown that the use of minerals licks does not aid in growing big bucks. In addition, deer do not utilize them as often as many hunters believe.

QUEEN BESS ISLAND:

A Victory over Wetlands Loss!

Photo by Charles W. Frank, Jr.

BY CHARLES W. FRANK

In 1956, Queen Bess Island covered an area of more than 40 acres and harbored tens of thousands of nesting Brown pelicans. By 1990, the island covered less than 20 acres. Today, a restoration project has brought new life to the island and to the nesting pelicans.

LDWF file photo

The fight to save the fragile ecosystem of our coastal wetlands has entered a new phase. An experiment has taken place on a tiny shell island near Grand Isle that also could be a turning point in the effort to save the Brown pelican restocking program of the Louisiana Department of Wildlife and Fisheries.

It also may prove an effective means of preserving the endangered barrier islands that protect our marshes. By no means a simple project, it has involved the Coastal Restoration Division of the Louisiana Department of Natural Resources, the United States Corps of Engineers, commercial dredging contractors and LDWF.

Like many battles against the forces of nature, this one has been a bitter contest, with defeats that would have disheartened a less dedicated team.

Save the pelicans! Save the wetlands! Cries that have echoed not only in our home state but all over the country. With the help of several state and federal agencies, these two fragile parts of the ecosystem may survive.

Queen Bess Island, a tiny dot in the middle of Barataria Bay near Grand Isle, once harbored huge flocks of Brown pelicans. In years long passed, they continuously circled the same rich, fish-filled waters that the infamous buccaneer Jean Lafitte once frequented. Then man-made disaster struck and the skies of our coastal estuaries became silent and empty.

How it happened, and the story of the fight to save the pelicans and their little island are tales that could have a Hollywood script writer biting his fingernails. Who among us is so jaded that we do not remember with a thrill the sight of Brown pelicans gliding in undulating lines along the wave tops as the sparkling, blue green combers crashed into our Gulf beaches? And then the pelicans were gone. We would learn, too late, that pesticides were responsible for the decimation of our official State Bird.

The Brown pelican (*Pelicanus occidentalis carolinensis*) ceased nesting on our coast in 1961 and had disappeared by 1963. In 1960, Dr. George Lowery (1913-1978), the world-famous Louisiana State University ornithologist, asked me to watch for nesting browns, as he was of the opinion they had vanished from our coast.

A 1919 survey counted 50,000 coastal birds and, in 1931, Bulletin #20 of the Louisiana Department of Conservation proclaimed, "The 14 mud lumps at Pass a Loutre, one of the mouths of the Mississippi River, usually give nesting room for 35,000 to 50,000 adults from March to July; the lumps off Southwest Pass contain a few hundred. It is not exaggeration to claim that 75,000 to 85,000 adults nest along the coast every year."

It's hard to believe mankind could wipe them out in the blink of an eye. Pesticides such as DDT, Dieldrin and Endrin, used in agribusiness, washed from farmlands throughout the United States into the Mississippi River. Residues from manufacturing facilities from its source to the tidal marshes also fouled the waters. Careless use of chemicals intended to increase productivity had backfired into a classic error in methodology. Without research into its side effect on ecology, technology led to a disastrous mistake.

The Brown pelican feeds and remains healthy by consuming large quantities of menhaden, mullet and other fish. In turn, its fatty tissues accumulate increasing quantities of chlorinated hydrocarbons, the end product of many of the pesticides we were using. Terns and gulls were not as affected. They are essentially pelagic creatures, feeding further offshore, where the effects of the pesticides were largely dissipated.

The hydrocarbons were tolerable in a healthy and well-fed pelican to some degree, but when the colloidal suspension of mud and debris from the Mississippi River clouded the waters of the bays and inlets, feeding became more difficult and the birds were forced to live off their contaminated body fat. Sick and weak flocks began to appear. An increasing number of die-offs occurred.

In 1968, Dr. Leslie Glascow, Allan Ensminger, Larry McNease, Ted Joanen, David Richard and Joseph Shepard began the LDWF Brown Pelican Restocking Program. Three

The Brown pelican, Louisiana's state bird, (bottom left) has endured a tragic decrease in numbers.

Photo by Charles W. Frank, Jr.

Tons of limestone were brought in for reconstruction of the island's coastline.

It was hard to imagine that Phase I would accomplish anything when Queen Bess was monitored in 1991. The map below was designed by the Coastal Restoration Division as a guide for the restoration project.

Photo by Charles W. Frank, Jr.

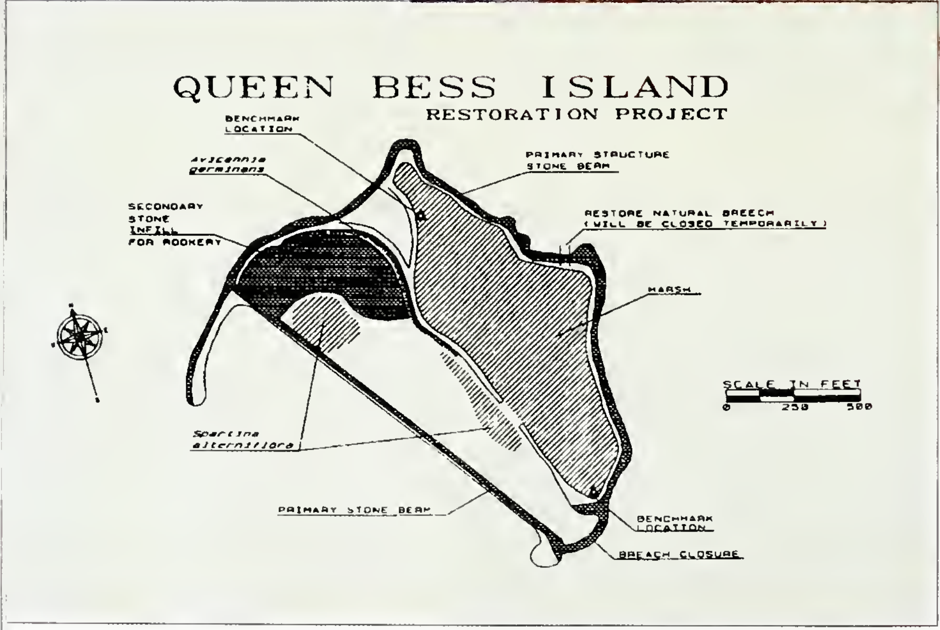


Illustration provided by La. Dept. of Natural Resources

release sites were chosen, with Queen Bess Island being the second choice site in Barataria Bay. The first choice was Camp Island, near the LDWF St. Amant Research Laboratory at Grand Terre. That site proved to be too low, and the project was moved to Queen Bess after several abortive washouts.

Queen Bess was an excellent choice. Several feet above mean high tide and covered with a mangrove border, its saltwater grasses furnished a nearly perfect sanctuary for hosts of herons and egrets. In spite of the slow destruction of the little island by natural forces, there were about 1,500 pelicans nesting on the island in 1984. The raucous cries of nestlings greeted visitors to the rookery.

From 1968 to 1980, LDWF reintroduced 1,276 Brown pelicans to three release sites in southeast Louisiana. Queen Bess, the most productive site, fledged 2,751 birds by 1988. Brown pelicans take three years to reach sexual maturity. Today, most of these birds and many of their offspring are adding to the hosts of birds we see flying once again over our Gulf beaches.

Then disaster again. Natural subsidence, aided and abetted by the storm tides that plague our coasts each fall, reduced the area of Queen Bess Island from a little more than 40 acres in 1956 to less than 20 acres in 1990. Much of the remaining island was a shallow tidal pool unfit for a nest site. The mangrove thickets were gone. The marsh grasses were limited to the most hardy cord grasses and oyster grass (*Spartina alternaflora*). The pelicans were forced onto a small, raised shell bank on the east end of the island. Waste was transforming even this into an unhealthy pile of abandoned nest sites and feces. The only color on this rather bleak landscape was an occasional small blue flower of the salt matrimony vine (*Lyceum carolinean*) The pelicans were forced to abandon the island as nest sites disappeared.

In September 1990, the literal rebuilding of a coastal island was undertaken.

The agencies involved were excited at the prospects. Many areas of expertise were included in the development of the plan. LDWF biologist Richard Martin, Linda Glenboski, environmentalist from the Corps of Engineers, Dr. Bill Good, state Director of Coastal Restoration, Project Manager Chris Acardo from the Corps, and other experts on environmental research and development meshed their talents.

A full 10,000 yards of reef shells from the Atchafalaya (substituted for the now banned clam shells) were dropped into Barataria Bay as a nylon support mat was unrolled. Pelicans watched from the island and circled warily over the barges of material anchored nearby. The sun sparkled on the water and a paean drifted through my mind: the love of nature is a passion for those in whom it once lodges. It can never be quenched. It cannot (must not) change. It is a furious, burning, physical need, as well as a state of mystical exaltation.

But nature defied this first effort. The barrier so carefully constructed was breached and tidal flow flushed much of the newly-placed spoil from the center of the island. Black mangrove bushes and saltwater-resistant cord grasses from the Plant Resource Management Facility at Golden Meadow were placed along the edge of the restored areas, but they looked like a thin line of sentinels, about to be overwhelmed by mother nature.

Then the troops were mustered again. In the fall of 1992, Phase Two was completed. The Corps of Engineers, the Wildlife and Fisheries team and the Coastal Restoration Division rethought their plan of attack. Barges loaded with limestone arrived, their cargo to be distributed along Queen Bess's newly defined shores. And - wonder of wonders - the mangrove sentinels and the cord grasses had taken root and were spreading their root structure to retain the soils pumped in from Phase One. Where single shafts of cord grass had been planted, stands about 5 feet in diameter were joining together to form a sea of soft green and amber cover that protected the fragile soil from erosion.

The battle has not been won, but the forces that would have eliminated Queen Bess have been checked. Two breathing spaces have been left in the stone berm. These openings will allow a tidal wash of fresh nutrients to keep the marsh healthy.

Cord grasses and black mangroves are now standing tall, waving in the breeze. Seaside sparrows and clapper rails, snowy egrets, great blue herons and reddish egrets are showing an interest in the project, even as the chains of a drag line clank nearby. They will join the pelicans in a nesting ritual that begins in the latter part of each February. Once more shorebirds such as dowitchers, plovers, oystercatchers, and a dozen or more species of sandpipers will frequent the shallows.

With a bit of help from the hands that almost destroyed them, they will return to make our days a bit happier. ■

The saltwater grasses of the island provide a perfect sanctuary for nesting pelicans.

LDWF file photo

Reptiles and Amphibians in Louisiana

BY CLIFTON COLES & DR. HAROLD A. DUNDEE

Photo by Richard Martin

Walk into almost any pet store and, in addition to the usual assortment of kittens, puppies, fish, pocket rodents, caged birds, and supplies, you're bound to find a healthy selection of reptiles and amphibians. Many people avidly consider a snake or a frog as a pet; they are not turned off by the cold-bloodedness or strange shapes or peculiar habits.

After all, they will tell you, picking up a python can be every bit as exciting as petting a poodle.

For many others, the moment can be less than thrilling, but don't be fooled. The reptile and amphibian (herpetofauna) business is a large one. In Louisiana, one of the nation's leaders in this industry, trade for recreational, commercial and research purposes is a $10-30 million a year enterprise. That's a lot of toads and turtles - three to five million annually, to be more exact.

Besides the small and large businesses that make a living out of buying and selling herpetofauna, a large part of the industry involves individuals who take animals out of their natural habitat to sell them or breed them and sell the offspring. Youngsters all over the state often do this as a way to earn some pocket money and, in the process, have fun and learn a little about nature.

What these enthusiasts must now bear in mind are the new statutes regulating reptile and amphibian trade in Louisiana beginning on July 1, 1993. In the interest of maintaining the fun and excitement of coming across reptiles and amphibians and enjoying them, the Louisiana Legislature has adopted laws to ensure a viable and sustainable harvest. They are not intended to curb traffic, but rather to help sustain populations so that a regular productive harvest can become part of our legacy. The laws will act in much the same way as those that control and govern the alligator industry.

The herpetofauna industry involves many aspects. The majority of the species are used as pets, but many are in considerable demand for scientific and educational purposes. Additionally, bullfrogs, certain turtle species and some salamanders are taken locally for food. Lizards, especially the green anole or chameleon, are in great demand as pets or as food for other animals.

Louisiana's herpetofauna also are in great demand all over the world. Huge numbers of turtles are shipped to Asia. Farm-raised red-eared sliders are sold in pet stores in Nairobi, Kenya. This international trade pours millions of dollars into Louisiana's hard-pressed economy.

The desire to protect legitimate commercial interests from abuse by habitat damage, indiscriminate and destructive collecting and unfair practices was first expressed by the commercial reptile and amphibian dealers in our state. They recognized that the herpetofauna industry in Louisiana exploits a valuable natural resource that provides thousands of jobs and millions of dollars in income and, if that industry is abused, there simply will be no more industry. That means no more collecting fun for young people and perhaps no more reptiles or amphibians in Louisiana at all.

Taking the cue from the commercial dealers, the Louisiana Legislature set up the Reptile and Amphibian Task Force for the purpose of studying all aspects of the educational/scientific/pet trade and making recommendations for their maintenance. The 16 members of the Task Force include representatives from the Department of Wildlife and Fisheries, the Department of Agriculture and Forestry, the Louisiana Wildlife Federation, the Louisiana Science Teachers Association, professional herpetologists, commercial dealers, and members of the pet store trade.

In February 1992, the Task Force presented its suggestions to the Legislature, and these recommendations will largely take effect as law in July 1993, complementing and supplementing federal regulations that provide for protection of threatened and endangered species. The laws do not apply to the alligator, which has separate rules of its own.

Broadly stated, the new actions, along with existing legislation, will regulate the collection and sale of reptiles and amphibians by, among other things, providing guidelines for collection methods and creating dealer and commercial licenses and attendant fees. A surcharge on out-of-state sales will be used to generate funds to support research for use in determining policies for maintaining healthy populations of our reptiles and amphibians. Anyone who violates the provisions of the law is subject to fines or imprisonment. The Louisiana Wildlife and Fisheries Commission has the authority to set seasons, harvest limits, and other restrictions after consultation with the Task Force.

What this amounts to is that if anyone goes out with the intention of catching a native reptile or amphibian for fun or for profit, they must possess a license and obey certain regulations regarding collection methods and other limitations. These regulations are not designed to tell people what they **cannot** do, but rather are in place to instruct them on what they **can** do in the interest of maintaining healthy animal populations, so they, and future generations, can enjoy the land's bounty.

For most young people scouting for salamanders or looking for lizards, this means the possession of no more than a basic recreational fishing license. No license is necessary for those youngsters under eighteen, but be aware: restoring the habitat as you found it is important for any animal's continued survival. If you turn

The Reptile and Amphibian Task Force was created to study all aspects of the trade. New laws regarding the collection, sale and breeding of these animals will take effect July 1, 1993.

Photo by Bob Dennie

LDWF file photo

Don't kill that snake! Its value is measured not only in dollars but in its value to the natural habitat as well.

up a log or a stone and find nothing, replace it so that, in the future, some animal may utilize the cover. Destroying the places where reptiles and amphibians hide will leave them without suitable habitat and drive them from the area.

If you catch a reptile or amphibian and plan to sell it, either on an individual "as-you-find-them" basis or as part of your business, a Commercial Collector's License is required. Commercial dealers are defined as "persons engaged in the buying, acquiring, or handling by any means any species of native reptile in Louisiana for resale, or shipping or transporting any native reptile or amphibian either into or out of Louisiana." Please refer to the list of licenses and fees for the one that applies to you.

The use of gasolines, chemicals, and other volatile substances to force reptiles and amphibians from nests, dens, or other natural hiding places is prohibited. This is a very important provision that has been abused in the past, but it is obviously essential for continued survival.

Bullfrogs and lagoon frogs (pig frogs or grunters) can be taken year-round except in April or May, but no one may take a bullfrog less than 5 inches in body length or a lagoon frog less than 3 inches in body length. These measurements are revisions of present regulations. Frogs under the legal size, however, may be taken from privately-owned waters by the owner or his representative, and may be sold only for stocking other privately-owned waters to ensure a new generation.

The laws against trapping diamondback terrapins are holdovers from those instituted in the 1930s to protect the species when it was caught or raised as the primary ingredient in turtle soup and other dishes. During Prohibition, "Terrapin à la Maryland" was one of the few legal ways sherry could be served, and the animals were trapped by the thousands.

It is important that all traps be attended regularly to prevent accidental drowning or other injury and to minimize the dangers of incidental catch, either of other species caught in traps set for herpetofauna, or vice versa. Any trap must bear the trapper's name, address, and license number.

Historically, reptiles and amphibians are the vertebrates least appreciated by the general public. It is important to understand and appreciate the part these animals play in the natural environment as controllers of insects and rodents. Every angler and hunter at one time or another will come across that occasional snake and be tempted to harm it or even kill it. But it is important to recognize its position in the natural order. The upshot: *don't kill that snake!*

It is essential that everyone who deals with reptiles and amphibians be aware of the new laws, for everyone's sake, but especially for the animals'. So have fun, but be aware. As new data and studies accumulate, the regulations may change or be modified, but always with the intent of providing us with the best blend of conservation and economics. Louisiana has a legacy of being a Sportsman's (and a reptile and amphibian fancier's) Paradise. Let's keep it that way.

FEES

NON-COMMERCIAL COLLECTORS

Residents (18 and older) $5.50
(basic recreational fishing license)
Non-residents (18 and older)................$10.50
per trip or $15.50 per season
(basic recreational non-resident fishing license)

COMMERCIAL COLLECTORS

(persons engaged in collecting reptiles and amphibians for sale)
Residents (older than sixteen)...................$25
Non-residents (regardless of age)............$200

COMMERCIAL DEALERS

(persons engaged in the buying, acquiring or handling by any means any species of native reptile in Louisiana for resale, or shipping or transporting any native reptile or amphibian either into or out of Louisiana)
Residents...$105
Non-residents...$405

These fees include captive-reared animals, regardless of the number of generations removed from the wild.

An exception to the license fee is provided for persons engaged in legitimate herpetological research. They may request, at no charge, a Scientific Collector's Permit from the Secretary of LDWF. *No specimens obtained under this permit may be sold.*

For further information on licenses and fees, contact Louisiana Department of Wildlife and Fisheries Sport License office at (504) 765-2887 or the Commercial License office at (504) 765-2880. ■

Education Corner

A CLOSER LOOK

ENVIRONMENTAL ETHICS

By Lyle M. Soniat, Ph.D.
and Eleanor Abrams
Louisiana Sea Grant College Program

Every night on television we hear news about dramatic human-induced changes to the environment, not only in this country, but throughout the world. Species extinction, urban smog, polluted waters, disappearing rain forests—we want to take action to reverse the changes, but we feel powerless when confronted by the magnitude of them. When people feel uncomfortable or helpless, they often reminisce about the "good old days." Actually, an objective look at the history of the United States shows no sun-kissed peaceful times. Every time and place had its share of problems. It may be more useful to pause and reflect on our past environmental attitudes and values, and their effects on the natural landscape. Introspection may help us determine the paths that led us to our present environmental condition—and perhaps help us find a way to deal with our future.

When settlers first came to America from Europe, they were awed by massive expanses of unspoiled, unsettled lands. Thoughts of preservation, limits, and conserving-for-tomorrow were rare in a place where resources were viewed as limitless. Pioneers flooded the frontier searching for land. They saw the wilderness as a dangerous place that must be tamed by human tenacity and technology. From 2.5 million acres of coastal grasslands that existed in Louisiana 100 years ago, there are less than 1,000 acres left. The prairie is now grazing lands, farmlands, or cities and roads. In one lifetime, the settlers across country tamed the wilderness.

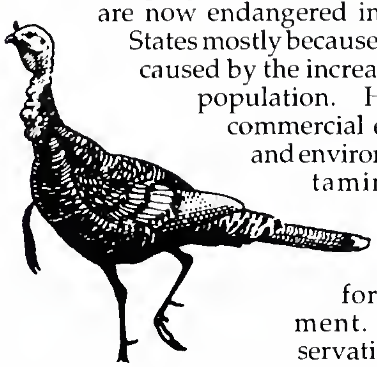
> *When people feel uncomfortable or helpless, they often reminisce about the "good old days."*

With the advent of modern medicine, new farming techniques and oil-fueled technology, people began living longer and the human population exploded. This increase of human population began to take its toll on animals. Animal populations that seemed vast and never-ending, began to vanish. In Louisiana, the Carolina parakeet, once a common sight flitting among the cypress trees, disappeared. In only seventy-five years, this colorful native was hunted to extinction for its feathers and meat, or was killed by farmers as a nuisance. With such drastic declines and the lack of any new frontiers, people began to realize that natural resources were not unlimited.

> *This increase of human population began to take its toll on animals.*

When the end to the wilderness was perceived, preservation became a popular cause. Preservation protects a natural resource from utilization so that its restoration can be insured. The Endangered Species Act passed in 1972 preserves the land as well as the species if a plant or animal is in danger of becoming extinct throughout all or significant portions of its traditional range. Today, as a result of this act, the populations of many species that were on the brink of extinction are increasing. The wild turkey, black bear, prong-horned antelope and the alligator are just a few of the endangered species that have been re-established in the remaining wilderness areas. Today, populations of these species do not need total protection. They are regulated by resource management and game laws to insure a sustainable population.

However, other species such as sea turtles, whooping cranes, and gopher tortoises are now endangered in the United States mostly because of problems caused by the increase in human population. Habitat loss, commercial exploitation, and environmental contamination are some of the primary reasons for endangerment. The preservation of plants



and animals in decline, and protection of the remaining habitats are necessary if we want to remove the threat of extinction.

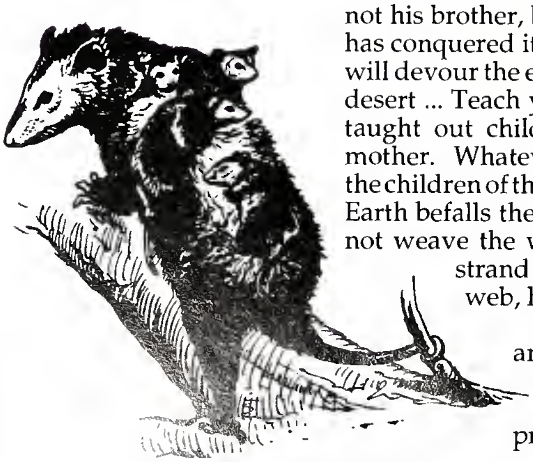
Not all species' populations are in danger of extinction. Some are at a healthy level or even growing. These species do not need protection and can benefit man if managed properly. Conservationists believe that humans can use the surplus portion of any species' population so long as enough individuals remain to repopulate, and the habitat is not damaged. Conservation encourages responsible attitudes toward the use of resources, and management is the action that springs from those attitudes. For example, to enjoy their sport, hunters and fishermen want to conserve animal populations. They obey game laws and purchase hunting and fishing licenses to support this desire. These funds are used to maintain wilderness areas, and pay researchers and game law enforcement officers.

Sportsmen are not the only conservationists. Everyone has an interest in keeping the ecosystem healthy. A conservation-minded person follows laws and regulations set by the government, and understands the intent behind the laws. To protect and conserve our natural resources for tomorrow requires a change in our thinking about humanity's relationship to the natural world.

Man did not weave the web of life: He is merely a strand in it.

— Chief Seattle

In 1855, Chief Seattle, a leader in the Dwamish Indian tribe, eloquently described humans interrelationship with the land in a letter to President Franklin Pierce. He wrote: "How can you buy or sell the sky—the warmth of the land? The idea is strange to us. Yet we do not own the freshness of the air or the sparkle of the water. How can you buy them from us? Every shining pine needle, every sandy shore, every mist in the dark woods, every clearing and humming insect is held in the memory and experience of my people ... We know that the white man does not understand our ways. One portion of the land is the same to him as the next, for he is a stranger who comes in the night and takes from the land whatever he needs. The earth is not his brother, but his enemy, and when he has conquered it, he moves on. His appetite will devour the earth and leave behind only a desert ... Teach your children what we have taught out children, that the Earth is our mother. Whatever befalls the Earth, befalls the children of the Earth. Whatever befalls the Earth befalls the sons of the Earth. Man did not weave the web of life: He is merely a strand in it. Whatever he does to the web, he does to himself."



People often say, "My actions are not significant" or "I can't do anything to help the environment because the problems are too big." As Chief Seattle suggested, we can give our children a responsible, ethical approach toward the land and its inhabitants. Laws and regulations partially protect our natural resources but those rules depend upon the attitudes and beliefs of the people. It is critical that laws be effective and that we understand why they were written. A responsible hunter passes up a shot at a buck when the light is too dim. An ethical person recycles metals, plastics, newspapers, and glass to help extend the usefulness of our natural resources. Certain species need to be protected (preservation) while others can be used for limited human consumption (conservation). The future looks wonderful if we understand and base our actions on the belief that we are interdependent with all other species.

Activity

Chief Seattle must have been a remarkable person. His simple eloquence belies a deep understanding and appreciation of the interrelationship of people and the environment. Yet, almost 140 years after he wrote those words, we still struggle with the idea of environmental ethics. The different rationales for preservation and conservation are not difficult to understand; but to make them part of our behavior is another story.

A change in our attitude is often a matter of our perspective. Consider the following scenarios: (1) A community wants to build a dam in an unpopulated valley to generate electricity, build a lake for fishing and boating, and create economic opportunity through the generation of new jobs and businesses. Waterbirds rest on the river during their migrations to and from the North. There are some endangered species of fish inhabiting the river and there are some rare medicinal plants that grow in the valley. What kinds of information would you want to know before you decide on the fate of the valley? Would your answer be swayed if your parents received jobs if the valley was flooded? (2) You and a friend are hunting in a duck blind on opening morning. Your first shots result in the killing of five mallards. This year's limit is three ducks per hunter, of which only two may be mallards. What do you do with the fifth duck? Which of you continues to hunt for the last bird? Both? (3) A cold front pushes through the marsh and kills or injures a large number of redfish: several are close to dying. You are a Wildlife and Fisheries game warden and have observed a family netting up the fish. You decide to (a) keep driving, (b) help them catch the dying fish, (c) issue them a ticket for catching over their limits, (d) get a limit yourself. Would your answer change if the family looked poor and needed the food?

LAW LINES

Behind the Badge

BY CAPT. KEITH LACAZE

Anyone operating a boat should consider safety the number one priority. The safety of everyone on board and prudent operation of the vessel are the responsibilities of the operator. Preparation, familiarity with the equipment and courtesy are all important elements that contribute to safe boating.

One of the newer vessels on Louisiana waters, and one that poses some safety concerns for law enforcement officials as well as traditional boaters, is the personal watercraft. Often called the "jet ski" or "wet bike", the personal watercraft is defined as a vessel which uses an inboard motor powering a water jet pump as its primary source of power, and which is designed to be operated by a person sitting, standing or kneeling on the vessel, rather than the conventional manner of sitting or standing inside the vessel.

Each year, personal watercraft gain popularity as recreational boats. Everyone who owns or is considering acquiring a personal watercraft should be aware of the requirements and regulations governing their use. While these craft differ from other boats, they are subject to the same laws as larger, more conventional vessels.

The U.S. Coast Guard classification for all personal watercraft is "Class A Inboard Boat." They are required to carry the same safety equipment as any boat less than 16 feet in length. This includes one approved Type I, II, III or IV Personal Flotation Device for each person on board or being towed by the craft. A bell, horn, whistle or other efficient sound producing device is required, as well as a B-1 type U.S.C.G. approved hand portable fire extinguisher. In coastal waters, the personal watercraft must also carry approved visual distress signals for night time use.

In addition to Class A boat requirements, there are some special regulations which apply specifically to personal watercraft. A person operating a personal watercraft equipped with a lanyard type engine cutoff switch shall attach the lanyard to his person, clothing, or personal flotation device.

In Louisiana waters, no person shall operate a personal watercraft between the hours from one-half hour after sunset to one-half hour before sunrise. The craft must, at all time, be operated in a reasonable and prudent manner.

Persons under the age of 13 are prohibited from operating a personal watercraft in Louisiana. It is also illegal for the owner of any such craft, or any person having charge over or control of a personal watercraft, to authorize or knowingly permit the same to be operated by a person under 13 years of age. Also, liveries (rental businesses) shall not lease, hire or rent a personal watercraft to or for operation by any person who is under 13.

Finally, since personal watercraft are classified as powerboats, they must be registered with the Department of Wildlife and Fisheries. The registration numbers and the expiration decals must be displayed on the forward half of the vessel, above the waterline. The certificate of number must be on board whenever the craft is used.

Safety goes beyond simply meeting the equipment requirements. The operator of a personal watercraft must be familiar with all features of his individual vessel. No one should operate any vessel unless they can properly steer and control speed. New operators require thorough instruction and should not attempt difficult maneuvers until they have acquired the necessary skills.

One of the most common causes of boating accidents is lack of attention to changing situations on the water. Many operators make the mistake of becoming too involved in their own activities, and fail to keep track of their surroundings. Busy waterways have many obstacles which must be avoided. Personal watercraft are among the most maneuverable boats on the water and the operator is responsible for maintaining a safe distance from swimmers, skiers and other, less maneuverable, boats.

Operating any boat while under the influence of alcohol or drugs is strictly prohibited and the same penalties apply as when driving a motor vehicle while intoxicated. Remember that the effects of alcohol are intensified on the water due to the sun and wind.

Personal watercraft operators could avoid much of the growing criticism of their sport by simply practicing safety and extending courtesy to other boaters. Buzzing fishermen and jumping the wakes of boaters and skiers are complaints most often received by wildlife agents. Such actions can result in charges of careless or reckless operation and can cause accidents and serious injuries.

Louisiana waters are shared by many people. Everyone can and should be able to enjoy themselves equally. Mutual respect and courtesy go a long way toward creating accord and saving lives. ■

LDWF file photo

Personal watercraft are classified as Class A inboard boats.

CONSERVATION notes

Department Commended by Citizens' Group

The Louisiana Department of Wildlife and Fisheries was presented with an award of merit for its restocking effort in the Atchafalaya Basin by representatives of a citizens' group. The Citizens Program for Restoring the Spillway, or CPR Spillway, a private group dedicated to restoring the area after damage done by Hurricane Andrew last August, presented the award at the March 4 Wildlife and Fisheries Commission meeting.

Ernie Gammon and Sid Sanders, co-chairmen of CPR Spillway, presented the award "in recognition of commitment to the restoration of the Atchafalaya Basin and [LDWF's] exemplary and meritorious service to CPR Spillway's 1992-93 black bass restocking program."

Gammon extended his thanks on behalf of CPR Spillway to LDWF Secretary Joe L. Herring, Inland Fisheries Administrator Bennie Fontenot, Inland Fisheries Programs Manager Arthur Williams, and biologist Tim Morrison, Inland Fisheries project coordinator. Gammon cited them for displaying a "high level of professionalism, earning the recognition and respect of the fishermen in the region." He said that they could be counted on "on weekends, on holidays, when it was cold, and it was raining, and when it was cold and raining."

Pictured below are Sid Sanders (far left), Bennie Fontent, Tim Morrison, Arthur Williams, and Ernie Gammon.

LDWF file photo

Wild Louisiana Stamp Chosen

The first Wild Louisiana Stamp has been chosen and awarded to Ron Hooper of Shreveport. The stamp contest was held on March 25, 1993 at the Louisiana Department of Wildlife and Fisheries headquarters. The stamp chosen depicts the adult black bear set in the backwoods of Louisiana.

A specially selected panel of five judges critiqued 14 paintings based on realistic form and coloration of the animal, Louisiana habitat and dominance of the animal in the painting. Hooper, a native of Shreveport, has been a professional painter for 20 years. Although he has experimented with a variety of subjects, he is best known for his Louisiana landscapes. Hooper has entered the Louisiana Duck Stamp contest in the past and placed high, but never placed first.

The monies generated by the sale of stamps and a percentage of the print/poster sales are dedicated to nongame and land stewardship projects. Anyone visiting department managed land is required to have a valid Wild Louisiana Stamp or a valid hunting or fishing license. The sale of the 1993 stamp will begin July 1, 1993.

According to the predetermined arrangements, after stamp production, the painting will be returned to the artist who may produce prints and posters. Hooper has plans to produce a limited edition, signed and numbered print.

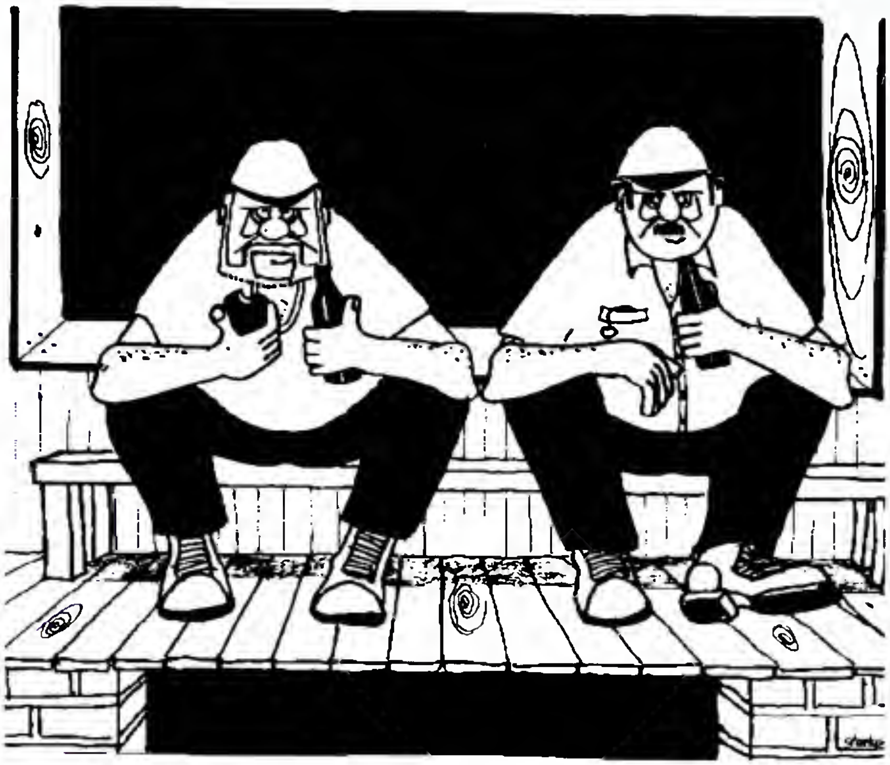
Lifetime License Holders

Beaugouef, Kenneth G.	Folsom
Buford, Allen J.	Mandeville
Crumpler, Mark D.	Sarepta
Davis, James	DenhamSpri
Dodd, Christopher S.	Farmerville
Garrison, James G.	Houston, Te
Hudson, Lance I.	Shreveport
Ingram, Christopher J.	Prairieville
Lehto, Erik M.	Lake Charle
Pourciau, David R. Jr.	Jarreau
Alldredge, John W.	Lafayette
Bush, Robert D.	Baton Roug
Dauzart, Lawrence A.	Baton Roug
Falgoust, Chad F.	Vacherie
Hurst, Jeffery C.	Baton Roug
Kessler, Paul B.	White Castle
Ledet, Dane P. Jr.	Houma
Scandurro, Timothy D.	River Ridge
Schwartzenburg, Christoper	Baton Roug
Schwartzenburg, Michael	Baton Rouge
Sonnier, Guy B.	Houma
Sommier, Raymond C.	Houma
Stamper, Timothy E.	Monroe
Tichenor, Don W. Jr.	Monroe
Verzwyvelt, Steven, Jr.	Natchez
Blackmon, Jay B.	Winnsboro
Gore, Michael B.	Leesville
Hoyt, Fred R.	Abbeville
Ranier, Myles D.	Lake Charle
Tate, Benjamin R.	Youngsville
Cumbest, Michael R.	Slidell
Fontenot, Brandon H.	Welsh
Fontenot, Jason L.	Welsh
Johnson, Justin D.	Monroe
Mire, Donovan J.	Thibodaux
Newland, Czerny R.	Pineville
O'Neal, David C.	Lake Charle
Pickering, James A.	Houma
Rauschmeier, Daniel R.	Shreveport
Sims, Mark D.	Downsville
Turner, Michael G.	Monroe

Talkin' Suthern Is Easy as Pah

FUNNY SIDE UP

BY GLYNN HARRIS



My hunting partners and I were sitting out on the porch at the Lucky Buck deer camp a while back talking about things that good ole boys talk about when they go to the hunting camp.

After awhile, Clovis Clingfod stood up, scratched the scruffy stubble on his chin and said, "I thank I mona go down to the Sebmlebm and git me a Sebmup. My throat's drah."

What's that? You think Clovis is speaking in some foreign language do you?

Why his declaration was perfectly clear to us. Although someone from New Joisey might have trouble deciphering what Clovis intentions were, we didn't have a bit of trouble.

After Clovis sauntered on over to the Seven-Eleven for a Seven-Up to wet his dry throat, it occurred to me that some folks may have trouble understanding what good ole boys are saying when the talk southern. As a public service to all Louisiana Conservationist readers, I jotted down some phrases I heard being used, strictly for your edification , of course.

Airs - means to make mistakes. "That's the most airs the Pittsburg Parts have made all season."

Oakree - a southern dish that goes down real easy when it's boiled. "Gimme a mess of oakree and some arsh-taters and summa that collie-flare. I'm tarred of eatin' them viENNer sawseges."

Dayum; hale - cuss words. "If you don't quit saying bad words like `daym', yure gonna go to hale."

Tar arn - A tool. "Lemme see that tar arn so I can change muh tar."

Babdist - a church group. "I blong to the Babdist church and I sang in the kwar."

Moon-pah - a choclit-coated sammich cookie. "Boy ain't nuthin better to warsh down a moon-pah like a ArCee coaler."

Phrasin - opposite of burnin' up. "Hey Dewk, put anuther lowg on the far. It's phraisin' in hyar."

Daints - keeping time to music with your feet on a daints floor. "I like to daints with her, speshully when she wars that sweet-smellin' clone."

Lie-berry - where you can check books out. "One uv the best places to read about farn countries is at the lie-berry."

Ranch - a tool to tighten a not. "Hold `at bolt for me while I grab aholt of the nut with this ranch."

Rench - to wash off with clean water. "When I'ze a boy, mamma would always make me draw up a tub of rench water on warsh day."

Cammer - a device for taking pitchers. "I brought the cammer but dang if I didn't forgit the fem."

Crine - squallin' your eyes out. "A good way to make a gurl stop crine is to brang her a bo-kay of flares."

Haired - a man's first name. "I luv Monday nite football, `speshly now that ole Haired Cosell ain't on it no more."

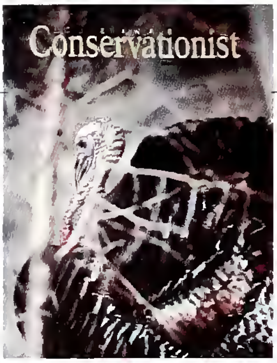
Uhmurkin - A resident of the Newnited States. "Ever time I hear the Star Sprangled Banner, it makes me glad I'ma Uhmurkin."

Yurpeen - Sorta like Uhmurkin 'cept these folks are residents of a continent across the waters, a place called Yurp.

Codderjiz - thangs you shoot out the barl of yore twenny-tue raffle.

Walluf'n Feshrez - the department in Lu-zanner's gubment what takes care of our deers and other walluf 'n our goggle-eyes and other fesh, too.

If you have any more trouble figgerin' out what them good ole boys is a-sayin' when they git to tawkin' amongst themselves, jus' let me know and I'll come a-runnin'. ■



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Bayou Kitchen

by Wayne Miller

Photo by Ken Glaser

Baked Amberjack Au Gratin

1 1/2	pounds Amberjack steaks
3	teaspoons oregano
6	tablespoons extra virgin olive oil
1	cup bread crumbs
	salt and pepper to taste

Rinse fish under cold running water. Pat dry. Season fish on both sides with salt and pepper. Place in lightly greased baking dish, skin side down. Mix oregano, bread crumbs and oil thoroughly. Spread crumb mixture evenly over surface of fish. Bake fish in 425 degree oven for 6 to 12 minutes per inch of thickness or until fish is opaque throughout. Remove fish from oven and place under broiler for 1 minute to brown the crumb covering. Serves 4

Baked Drum and Vegetables

1 1/2	pounds Drum - steaks or fillets
10	green onions
4	med. zucchini squash
4	carrots, peeled
1	large green pepper
4	tablespoons teriyaki sauce

Rinse fish under cold water. Pat dry. Place 4 individual portions of fish on 4 pieces of foil large enough to completely wrap around the fish and vegetables. Diagonally slice the carrots, green onions and zucchini. Cut pepper into strips. Divide vegetables into 4 servings and mound on top of fish portions. Pour 1 tablespoon of teriyaki sauce over each portion. Bring edges of foil together, fold and crimp edges close. Place on a baking sheet and bake at 425 degrees for 11 to 17 minutes per inch of thickness of fish until fish is opaque throughout. Serves 4.

Broiled Grouper with Peppers

1 1/2	pounds Grouper steaks or fillets
2	tablespoons light olive oil
	salt and pepper to taste
2	tablespoons additional oil
1	small green pepper
1	small red pepper
1	small yellow pepper
1/2	pound thickly sliced fresh mushrooms
1/2	teaspoon fresh chopped basil (1 teaspoon dried)
1	small jalapeno pepper finely minced, no seeds

Preheat broiler, rinse fish under cold water. Pat dry. Cut peppers evenly into julienne strips.

Brush fish with olive oil, season to taste. Broil fish 4 to 5 inches from flame or heat source 6 to 12 minutes per inch thickness until fish is opaque throughout. While fish is broiling, heat additional oil in large saute pan over medium-high heat. Add peppers, mushrooms, basil. Stir and blend for 3 to 4 minutes until vegetables are cooked, but still firm in texture. Position fish on individual warm plates. Top each with sauteed vegetable mixture. Serve immediately. Serves 4.

Note: These recipes can be used with any firm-textured fish, such as shark, drum, amberjack or grouper.

LOUISIANA

Conservationist 1993-94

CALENDAR

Louisiana Conservationist magazine and the Louisiana Department of Wildlife and Fisheries announce the theme for the 1994-95 outdoor calendar:

THE
OUTDOOR SPORTSMAN

A celebration of Louisiana's outdoors and the people who make it a "Sportsman's Paradise."

The focus of our next calendar will be
Interaction between People and the Environment.

Hunting, Hiking, Fishing, Swimming, Boating, Camping, Sailing or otherwise enjoying Louisiana's Outdoors

AWARDS: *Submissions will be judged in three categories. Three winning submissions and one honorable mention from each category will be selected for publication. Winners will be awarded a cash prize according to the following:* ***$100 for first place, $75 for second place, $50 for third place, and $25 for honorable mention. A cash prize of $200 will also be awarded for Best Overall for use on the front cover.*** *There is no limit to the number of photos you may submit.*

CATEGORIES: *(all photographs must show at least one person.)*

A. The Sportsman -- Whether it's fishing or hunting, Louisiana's bounty provides ample opportunity for sportsmen and women to test their skills. Our forests, bayous, lakes and rivers are home to a myriad of creatures that challenge our expertise and earn our admiration. Send in your best hunting or fishing photos.

B. Scenic Wonders -- Contemplative, majestic, breath-taking: Louisiana's many natural wonders. Whether its the thick and drowsy air of an ancient cypress forest by moonlight, the majesty and grandeur of the mighty oaks, or a breezy summer picnic on the Gulf Coast -- there's so much to see and enjoy. Put yourself in the picture.

C. Outdoor Activities -- Show the world those other sports that give the "Sportsman's Paradise" its name. Take us hiking. Take us camping. Take us canoeing. Take us birding. (Hunting and fishing pictures are not eligible in this category.)

The winning submissions will be published in the 1994-95 calendar as the July/August issue of Louisiana Conservationist magazine. Published annually, the calendar is enjoyed by 50,000 magazine subscribers, their families and friends. Many people wanting a year-round glance at Louisiana's natural offerings purchase the calendar individually.

To enter next year's calendar contest, fill out the Official Entry Form on the back cover.

CONTEST RULES:

1. A non-refundable entrance fee of $5 must be remitted with each application. Please make check or money order payable to *Louisiana Conservationist*. *DO NOT SEND CASH!*

2. Submissions, along with a completed application and entry fee, will be accepted from Monday, January 3, to Friday, April 15, 1994. Send to: *Louisiana Conservationist 1994-95 Calendar*, Louisiana Department of Wildlife and Fisheries, P.O. Box 98000, Baton Rouge LA 70898-9000.

3. Photographs will not be returned unless a self addressed envelope with certified postage is provided.

4. Only transparencies and first-generation duplications are eligible. *PRINTS AND NEGATIVES WILL BE NOT CONSIDERED.*

5. Each submission must be numbered to correspond with a number on the completed application. The photographer's name, address, and phone number must be indicated on *EACH* transparency.

6. Photographers must submit appropriate category of competition (A, B, C), as well as the location where each photograph was taken.

7. The submitted image must be horizontal, suitable for calendar.

8. Only photographs that have never been published before are eligible. The Louisiana Department of Wildlife and Fisheries retains all first publication rights on all winning photographs.

9. Only pictures taken after January 1992 are eligible.

10. There is no limit to the number of entries one photographer may submit.

11. This contest is not limited to Louisiana photographers.

12. Only photographs taken in Louisiana are eligible. Photographs with captive, domestic, or exotic species are not eligible.

13. Employees of the Louisiana Department of Wildlife and Fisheries and their families are not eligible.

14. Magazine editors have final decision on categories and awards.

Cover: Photo by Allen Riley, Jr.
Habitat: Upland Hardwood Forest
Tunica Hills, W. Feliciana Parish

Above: Photo by Stephen Everett
Habitat: Upland Lake
Indian Creek Reservoir
Rapides Parish

September 1993

SUN	MON	TUES	WED	THURS	FRI	SAT
			DMAP application deadline. *Alligator season opens this month.* 1	*Make final preparations for dove hunt.* 2	*Largemouth bass cruising again.* 3	4
5	*Labor Day* 6	7	*Dried bracts of the wild oak-leaf hydrangea still evident.* 8	*Last quarter moon* *Gift subscriptions to Louisiana Conservationist are very affordable.* 9	*Timber rattlesnakes give birth.* *Bow hunters should prepare for opening day with archery practice.* 10	*Go night fishing for crappie in fresh waters.* 11
Peak migration/staging of free ducks in southwest Louisiana marshes and rice fields. 12	*Grandparent's Day* 13	*White shrimp begin migration to the gulf as water temperatures cool.* 14	*New moon* *Commercial spotted seatrout season opens.* 15	*Rosh Hashanah* *First cool fronts initiate movement of flounder, redfish, sheepshead and black drum from marsh ponds to deep waters.* 16	*Rosh Hashanah* *Endangered Peregrine Falcons return to Louisiana from northern breeding grounds.* 17	18
Coastal Cleanup Day 19	*Time to plant winter wheat food plots.* *Begin distribution of tags and records to DMAP cooperators.* 20	21	*Fall equinox (first day of fall)* *First quarter moon* 22	*Peak spawning for redfish.* 23	*Archery and squirrel seasons approaching. Begin scouting.* 24	*Yom Kippur* *National Hunting and Fishing Day* 25
Many species of sunflower in bloom. 26	27	28	29	*Full moon* 30	AUGUST 1993 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	OCTOBER 1993 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

LOUISIANA Conservationist

Report Outdoor Outlaws **1-800-442-2511**

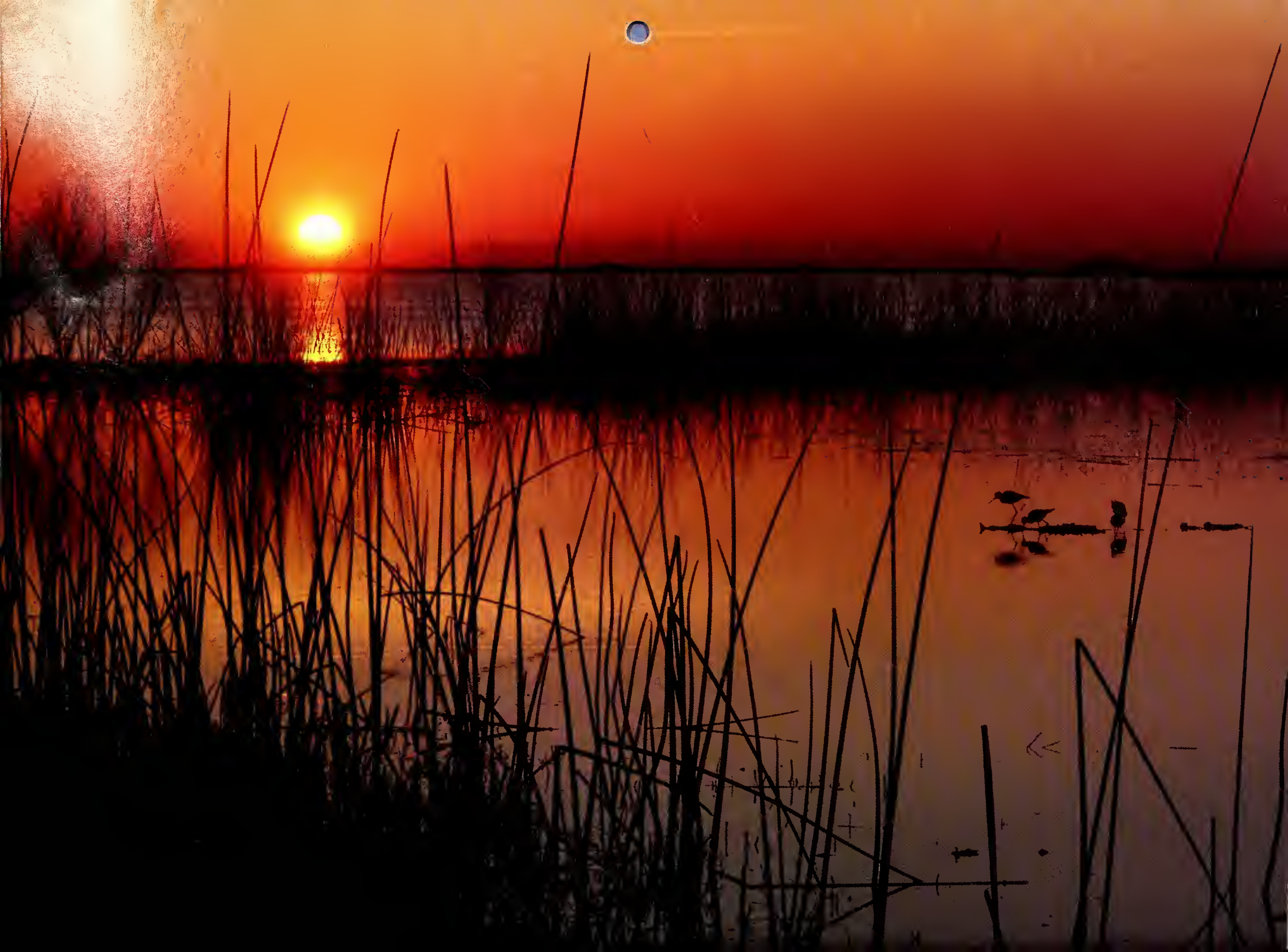

Photo by Nancy Webb
Habitat: Brackish Marsh
Cameron Parish

October 1993

SUN	MON	TUES	WED	THURS	FRI	SAT
SEPTEMBER 1993 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	NOVEMBER 1993 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30				*Initial snow and white-fronted geese arrive in southwest Louisiana.* *Archery and commercial hunting preserve seasons open.* 1	*Rabbit and squirrel seasons open.* *Brown shrimp begin spawning offshore.* 2
Gulf sturgeon migrate out of rivers to gulf waters. 3	*Crane-fly orchid flowers blend with leaf litter in mesic hardwood forests.* 4	*Clean and repair bird feeders, and stock up on winter bird food.* 5	*Largemouth bass and sac-a-lait feeding heavily.* 6	7	*Last quarter moon* *Bald Eagles return to Louisiana to begin nesting.* 8	*Clean and oil your fishing reels.* 9
10	*Columbus Day observed* *Sand seatrout quit spawning.* 11	*Columbus Day* *For good fishing and great fall color, float fish a small stream.* 12	*Begin flooding rice fields for waterfowl.* 13	*Speckled trout and redfish move to upper estuaries.* *Sight-in rifles for approaching deer season.* 14	*New moon* *Woodcock begin to appear in Louisiana.* *Commercial mullet season opens.* 15	*Menhaden season closes.* *Oysters begin to store glycogen and fatten as water temperatures cool.* 16
The azure blue flowers of the soapwort gentian can be found along small creeks in the pine lands. 17	*Flood crawfish ponds.* 18	*Alligators' feeding activities diminish.* 19	*Secretive Yellow Rails arrive this month to spend the winter in southwestern Louisiana fields and marshes.* 20	*Large flounder concentrate along barrier islands before migrating.* *Largemouth bass move into shallows at Toledo Bend.* 21	*First quarter moon* *Major migration activity for waterfowl.* 22	23
Daylight Saving Time ends. (31) *Halloween (31)* *Fall shuffle for quail completed* 24/31	25	*Large cones of longleaf pine release winged seeds.* *Statewide quail surveys begin.* 26	27	*If you don't want to maintain hummingbird feeders throughout the winter, they should be removed now.* 28	*First platform donated in 1987 to Louisiana's Artificial Reef Program.* 29	*Full moon* 30

Report Outdoor Outlaws ***1-800-442-2511***

Photo by Allen Riley, Jr.
Habitat: Upland Hardwood Forest
Tunica Hills, W. Feliciana Parish

November 1993

SUN	MON	TUES	WED	THURS	FRI	SAT
	All Saints Day *Renewals sent to commercial license holders.* 1	*Election Day* 2	*Begin flooding green trees for waterfowl.* 3	4	*Catahoula Lake beginning to flood.* 5	6
Last quarter moon *Deer rut underway in Area 2.* *Sumac leaves turn scarlet red.* 7	*Oyster spawning and redfish spawning ends.* *Seabobs begin appearing along coast.* 8	*Largemouth bass moving away from bank.* 9	*Stock bluegill in new or renovated farm ponds.* 10	*Veterans Day* *Fall waterfowl migration in full swing with mallards and diving ducks arriving.* 11	*Look for ripe persimmons in upland forests and fields.* 12	*New moon* *Partial eclipse of the sun* *Special handicapped season north of Hwy. 28 on Saline WMA.* 13
14	*Trapping season approaching.* *Begin issuing commercial licenses for 1994.* 15	16	17	*Large flounder increasingly available for gigging along the coastal barrier islands.* 18	19	*First quarter moon* 20
21	*Winter is a good time for wildlife photography.* 22	*Big blue stem and indian grass sway ornately in Louisiana prairies.* 23	24	*Thanksgiving Day* *Common Goldeneyes return to coastal Louisiana.* *Quail season opens.* 25	26	27
28	*Full moon* *Total eclipse of the moon* 29	30			OCTOBER 1993 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	DECEMBER 1993 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Report Outdoor Outlaws ***1-800-442-2511***

Photo by Jim E. Johnson
Habitat: Coastal Marsh
Sabine National Wildlife Refuge
Cameron Parish

December 1993

SUN	MON	TUES	WED	THURS	FRI	SAT
NOVEMBER 1993 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	JANUARY 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31		*Postlarval striped mullet hit beaches from offshore.* 1	2	*Canada geese begin arriving in southwest Louisiana.* 3	*Hunting and fishing items make great Christmas gifts.* 4
5	*Last quarter moon* 6	*Brown Pelicans begin nesting on Queen Bess island.* 7	*Sheepshead catches increase with low tidal conditions.* 8	*Hanukkah begins.* *Brown pods of the rare wild coco orchid are evident in upland longleaf pine areas.* 9	*Time to perform annual maintenance on Wood Duck boxes and make necessary repairs.* 10	11
Oyster mushrooms fruiting on willows. 12	*New moon* 13	14	*Clusters of mistletoe evident in deciduous hardwood trees.* 15	*Hanukkah ends.* 16	17	*Coastal Cleanup Day* 18
Deer rut underway in area 1. *Purchase 1994 commercial licenses early.* 19	*First quarter moon* *Squirrels begin their rut.* 20	*Winter solstice (first day of winter)* 21	*Christmas bird counts conducted across North America.* 22	23	*Christmas Eve* 24	*Christmas Day* 25
26	27	*Full moon* *Recycle Christmas trees for marsh management, wildlife cover piles or mulch.* 28	29	30	*New Year's Eve* *1993 commercial licenses expire.* 31	

Report Outdoor Outlaws ***1-800-442-2511***

Photo by Jason Saucier, Jr.
Habitat: Mixed Hardwood/ Loblolly Pine Forest
Rapides Parish

January 1994

SUN	MON	TUES	WED	THURS	FRI	SAT
DECEMBER 1993 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	FEBRUARY 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28					*New Year's Day* *Woodcock numbers peak in the state.* 1
Peak waterfowl numbers in coastal Louisiana. 2	*LDWF begins annual Bald Eagle nest surveys.* 3	*Last quarter moon* *Peak deer breeding time in Atchafalaya Basin.* 4	*Red maple begins blooming this month.* 5	*Crappie appear in river channel at Toledo Bend.* 6	*Resident Great Horned Owls nesting.* *Cameron Wildlife Festival in Cameron (7 & 8)* 7	*Bright red berries persist on dormant deciduous holly in forests and along fence rows.* 8
Endangered Louisiana pearlshell reproduces in cold water creeks in central Louisiana. 9	10	*New moon* *Bald Eagles begin nesting. Report sightings to LDWF.* 11	*Large schools of crappie congregate in deep water.* 12	*Early nesting wood ducks begin their search for tree cavities.* 13	*Striped bass migrate up Mississippi and Atchafalaya rivers.* 14	*Brown shrimp post-larvae begin entering the estuaries.* 15
Male Woodcock can be seen and heard in courtship flights. 16	*Martin Luther King, Jr. Birthday observed* 17	*For good fishing and great fall color, float-fish the state's small streams.* 18	*First quarter moon.* *Woodcock begin leaving the state for northern nesting grounds.* 19	20	21	*Blueberry-like blossoms of Elliott's huckleberry begin to open.* 22
Squirrel season closes (30). 23/30	24/31	*Clean and repair Purple Martin nest boxes in anticipation of first arrivals in early February.* 25	26	*Full moon* 27	*Brown Pelicans may be observed, at times, resting on the Cameron jetties.* 28	29

Photo by W. J. Turnbull
Habitat: Coastal
Cameron Parish

February 1994

SUN	MON	TUES	WED	THURS	FRI	SAT
		1	Groundhog Day Crabs in berry stage found along beaches. 2	Last quarter moon Gulf sturgeon enter rivers to find suitable spawning habitat. 3	4	Opossums give birth this month. 5
Male largemouth bass move to shallows. 6	Sac-a-lait fishing going full blast. 7	Sand seatrout begin spawning. 8	Bright golden blossoms of yellow top blankets fields and roadsides. 9	New moon Chinese New Year Peak recruitment for juvenile southern flounder in Calcasieu Lake. 10	11	Lincoln's Birthday Clean and repair Eastern Bluebird nest boxes. 12
13	St. Valentine's Day Brown shrimp post larvae begin moving northward through tidal passes. 14	Mardi Gras Deadline for submitting DMAP harvest records. 15	Ash Wednesday Explosive "waagh" calls of eastern spadefoot toads heard around ponds formed after heavy rains. 16	Good pre-spawn largemouth bass fishing. 17	First quarter moon Edible wild greens can be gathered in fallow fields. 18	White bass begin spawning. 19
20	Presidents Day Washington's Birthday Sac-a-lait schools breaking up. 21	Bees frequent blossoms of spring beauty in grassy areas. 22	23	Cover entrance to chimney if you do not enjoy the twittering of nesting chimney swifts. 24	Full Moon Armadillos give birth this month. 25	Big largemouth bass begin biting on crawfish at Toledo Bend. 26
Langlois violets blooming. 27	Quail and rabbit seasons close. Wintering geese begin northward migration. 28				JANUARY 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	MARCH 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

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Photo by Ken Willhoite
Habitat: Bottomland Hardwood Forest
Claiborne Parish

March 1994

SUN	MON	TUES	WED	THURS	FRI	SAT
		Start fertilizing farm ponds. 1	*Begin drawdown of flooded areas managed for waterfowl.* 2	*Large spawning size black drum enter estuaries.* 3	*Last quarter moon* *Largemouth bass begin nesting.* 4	*White shrimp begin moving into estuaries from offshore.* 5
Initial wood duck broods begin to appear. 6	*Pink shrimp begin appearing in Chandeleur Sound.* 7	*Paddlefish begin spawning.* 8	*Pine and oak pollen released.* *Red bud in bloom.* 9	10	*Coastal migratory species such as Florida pompano and Spanish mackerel begin arriving along the beaches.* 11	*New moon* *Mottled Ducks begin nesting on coast.* 12
13	*Clean and hang up hummingbird feeders with solution of four parts water and one part sugar.* 14	*Pheasant crowing counts begin.* 15	*Eastern Bluebirds begin building nests.* 16	*St. Patrick's Day* 17	*Peak black drum spawning.* *Speckled trout move into lower bays.* 18	*Peak of Wood Duck nesting.* 19
First quarter moon *Spring equinox, first day of spring* 20	21	22	*Overwintering white shrimp begin moving into Calcasieu Lake.* 23	*Largemouth bass begin spawning.* 24	*Quail coveys begin breakup.* 25	*Northern Parula Warblers return this month from wintering grounds in the Caribbean and Central America.* 26
Palm Sunday *Passover* *Full moon* 27	28	29	*Tubular red and yellow flowers of red buckeye visited by hummingbirds.* 30	*Frog season opens.* 31	FEBRUARY 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	APRIL 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

LOUISIANA Conservationist

Report Outdoor Outlaws ***1-800-442-2511***

Photo by Jason Saucier, Jr.
Habitat: Upland Hardwood Forest
Natchitoches Parish

April 1994

SUN	MON	TUES	WED	THURS	FRI	SAT
MARCH 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	MAY 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31				*April Fool's Day* *Good Friday* *Striped bass artificial spawning begins at Toledo Bend Hatchery.* *Frog season closes.* 1	*Last quarter moon* *Redear sunfish move to shallow waters.* 2
Easter *Daylight Saving Time begins.* 3	*Louisiana state wild flower, the giant blue iris, blossoms in southern marshes.* 4	*Rare Swallow-tailed Kites return to the Pearl River basin to nest.* 5	6	*Gulf sturgeon spawn in major rivers.* *Start weed control measures in farm ponds.* 7	*Peak ingress of brown shrimp post larvae into Calcasieu Lake.* 8	*Young rabbits begin to appear in thickets.* 9
New moon 10	*Osprey begin nesting edges of swamps in South Louisiana.* 11	*Lady slipper orchid, very rare in this state, flowers in mature hardwood forests of Central and North Louisiana.* 12	*Coyote pups whelped.* 13	*Collect mayhaw fruit for jams and jellies.* 14	*Stock largemouth bass fingerlings.* *Diamondback terrapin season closes.* 15	*A life jacket is your friend for life. It won't work if you don't wear it.* 16
Prepare brooding patches for turkeys. 17	*First quarter moon* *Purple Gallinules arrive from South and Central America to begin nesting.* 18	*Alligator snapping turtles begin laying eggs.* *Commercial menhaden season opens.* 19	*Peak crappie spawn at Toledo Bend.* 20	*Dig sassafras roots for tea making.* 21	*Earth Day* 22	*Coastal chenieres teem with migrant birds after the passage of cold fronts.* 23
24	*Full moon* 25	*Gulf coast toads begin breeding as air temperature warms.* 26	*Linear white inflorescences of virginia-willow adorn forested wetlands along small streams.* 27	28	*Purple flowers of rare hairy lupine may be seen in sandy uplands of the eastern Florida Parishes.* 29	*Last day for commercial spotted seatrout fishing.* *Commercial hunting preserve season closes.* 30

Photo by Kenneth A. Wilson
Habitat: Cheniere
Cameron Parish

May 1994

SUN	MON	TUES	WED	THURS	FRI	SAT
1994-95 hunting and fishing licenses are on sale. *Begin issuing 1994-95 recreational gear licenses.* *Wild turkey hatch underway.* 1	*Last quarter moon* *Rare reddish egrets nesting on isolated barrier islands.* *Bream spawning.* 2	*Brown Pelican nesting in full swing.* 3	*Light blue flowers of celestial lily evident in north Louisiana prairies.* 4	*Time to pick red mulberries.* 5	6	*Rare golden-wave tick seed in bloom in northwest Louisiana.* 7
Mother's Day 8	9	*New moon* *Dewberries ripe for picking.* 10	*Beginning of summer-long spawning of spotted seatrout.* 11	*Bream bedding at Toledo Bend.* 12	13	14
The graceful orchid, spreading-pogonia, will bloom until July in wet savannahs of southeast Louisiana. 15	16	*Silky camellia, an uncommon native shrub, blooms in rich upland woods.* 17	*First quarter moon* *Female gopher tortoises lay eggs in sandy pine lands of eastern Florida parish.* 18	19	*Selected lakes and rivers are stocked with striped bass.* 20	21
Female Rafinesque's big-eared bats bear their single offspring. 22	23	*Full moon* 24	*Wild blueberries are ripening in the piney woods.* 25	*Young Red-cockaded Woodpeckers leave their cavity nests.* 26	*Historical time of natural lightning fires in the piney woods.* 27	28
29	*Memorial Day* 30	*Last quarter moon* 31			APRIL 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	JUNE 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

LOUISIANA Conservationist

Report Outdoor Outlaws ***1-800-442-2511***

Photo by Nancy Webb
Habitat: Cypress Swamp
Ascension Parish

June 1994

SUN	MON	TUES	WED	THURS	FRI	SAT
MAY 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	JULY 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31		*Statewide surveys on bird breeding conducted this month.* *Frog season opens.* 1	*Mottled duck/tree duck brooding.* 2	*Peak fawn drop in upland areas.* 3	*Nation's largest tern/gull nesting frenzy on Louisiana's barrier islands.* 4
5	*Boating Safety Week (6-12)* *National Fishing Week (6-12)* 6	*Broad-leaved spiderwort blooming on salt domes in south Louisiana.* 7	8	*New moon* 9	*Hybrid striped bass schooling.* *Eastern coral snakes lay eggs this month.* 10	*White shrimp post-larvae move from offshore to estuaries.* *Free Fishing Day* 11
Chanterelle mushrooms fruiting in bottomland oak forests. *Free Fishing Day* 12	13	*Peak bobwhite calling.* *Flag Day* 14	*Bluebirds begin building nests again in preparation for second brood.* *Diamondback terrapin season opens.* 15	*First quarter moon* *Peak alligator nesting.* 16	17	*Brazilian free-tailed bats give birth this month.* 18
Father's Day 19	*Rare red penstemon in flower in upland deep sands of Central and northwestern Louisiana.* 20	*Summer solstice (first day of summer)* 21	*Threatened loggerhead sea turtles return to beaches of Chandeleur Islands to nest.* 22	*Full moon* 23	*Louisiana Fishing Enhancement Act signed into effect in 1986, creating Louisiana's Artificial Reef Program.* 24	*Time to collect bay leaves from the native bay trees for wild game sauce piquantes and gumbos.* 25
Get a jump on other sportsman by purchasing 1994-95 sport and recreational gear licenses early. 26	*Threatened ringed sawback turtles laying eggs June through July in Pearl River Basin.* 27	*Purchase your Wild Louisiana Stamp by the end of the month.* 28	29	*1993-94 hunting, fishing and recreational gear licenses expire.* *Last quarter moon* 30		

Report Outdoor Outlaws ***1-800-442-2511***

Photo by Maslowski Wildlife Productions
Habitat: Cypress Swamp
Honey Island, St. Tammany Parish

July 1994

SUN	MON	TUES	WED	THURS	FRI	SAT
JUNE 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	AUGUST 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31				*Purchase 1993-94 sport and recreational gear licenses.* *King mackerel fishery re-opens.* 1	*Juvenile white shrimp appearing in Louisiana estuaries.* *Large number of blue crabs along barrier island beaches.* 2
3	*Independence Day* 4	*Pink blossoms seen on the rare bog moss in wooded seeps.* 5	6	*Largemouth bass begin to congregate into worm holes.* 7	*New moon* 8	9
10	11	12	13	*Look for brilliant orange flowers of yellow fringed orchid in moist sandy soils.* 14	*First quarter moon* 15	16
White flowers on summer azaleas appear. 17	*Peak of quail hatch begins in pine lands.* 18	19	*Time to make file' from dried sassafras leaves for home-cooked gumbos.* 20	21	*Full moon* 22	23
24/31	25	26	27	*Rose gentian in bloom in prairies and pine lands.* 28	29	*Last quarter moon* 30

Report Outdoor Outlaws ***1-800-442-2511***

Habitat: Bayou
Sabine National Wildlife Refuge
Cameron Parish

August 1994

SUN	MON	TUES	WED	THURS	FRI	SAT
	Hunting season is near. check equipment and exercise to get into shape. 1	*Continue fall wildlife planting work.* 2	3	4	*Rare insect-eating spoon-leaved sundew,* Drosera intermedia, *in flower in savannahs and bogs.* 5	6
New moon 7	*Large numbers of Ruby-throated Hummingbirds pass through Louisiana to Central America.* 8	*Bluegill begin to school again.* 9	10	*Get lanterns and gigs ready for flounders on mud flats and in shallows.* 11	*Begin checking paw-paw thickets for fallen, ripe fruit.* 12	*First Blue-winged Teal and Pintail begin appearing in coastal areas.* 13
First quarter moon *Scout hunting areas and check mast-producing trees.* 14	15	*Appearance of pink and orange fruits of strawberry bush. (known as "deer ice-cream")* 16	*Work retrievers to get in shape for dove season.* 17	*Blue Wing Teal begin congregating on Catahoula Lake.* 18	*Create rabbit bedding and cover for other wildlife by piling together tree limbs.* 19	*Bull redfish begin congregating near tidal passes.* 20
Full moon *Best largemouth bass fishing at night at Toledo Bend.* 21	*Family groups of Swallow-tailed Kites can be observed soaring over Pearl and Atchafalaya river basins.* 22	*Pygmy rattlesnakes give birth this month.* 23	*Begin preparation for alligator season.* 24	*Delicious muscadine grapes ripen in forests throughout the state.* 25	26	27
Prepare to take fall pictures. Use ISO 25 film and a polarized filter. 28	*Last quarter moon* 29	*Endangered manatee wanders into Louisiana waters during late summer.* 30	*Keep all guns and ammunition stored out of children's reach.* 31		JULY 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	SEPTEMBER 1994 S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

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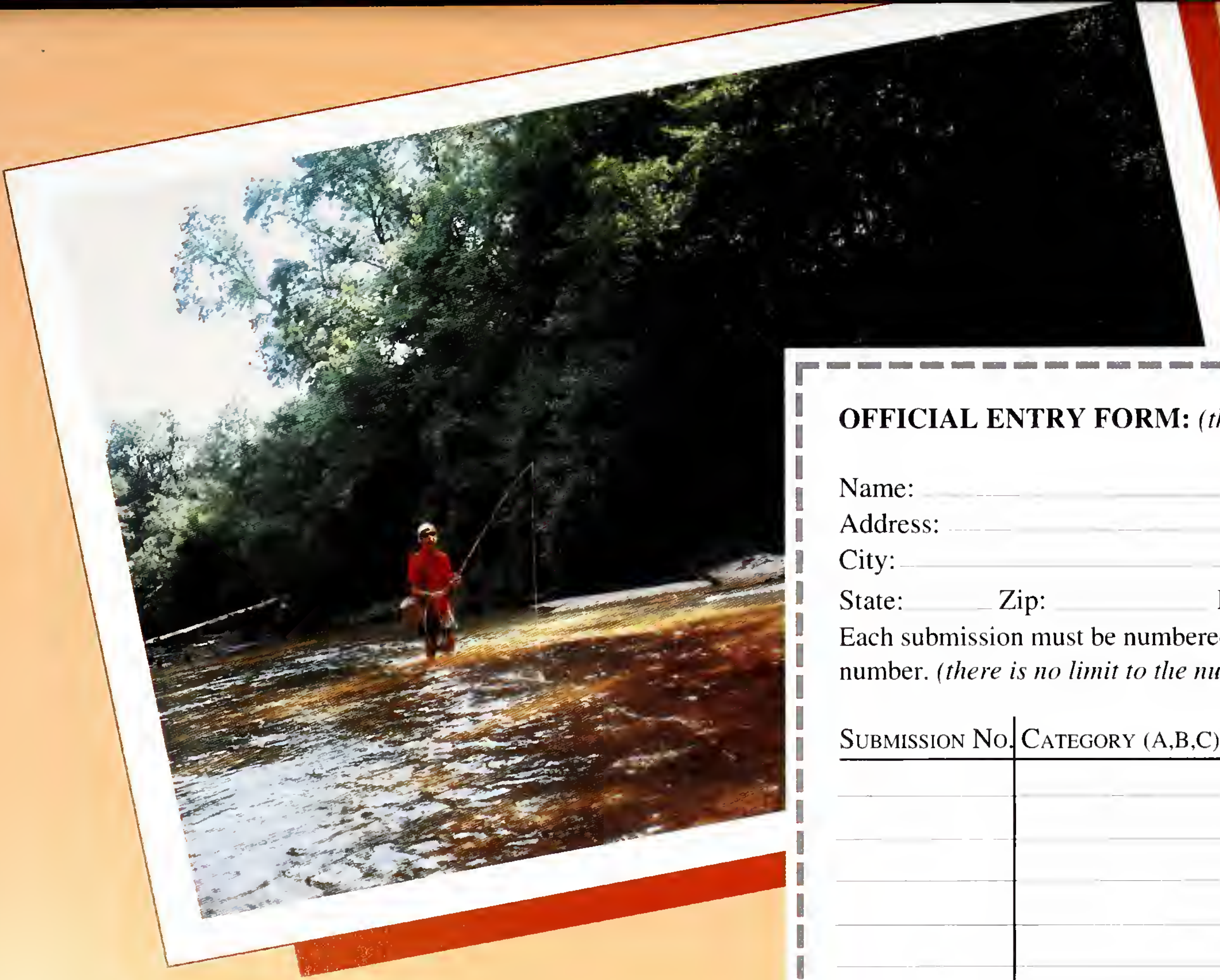

Keep the camera ready. Your next shot could be next year's calendar cover!

The selection begins January 3, 1994. So take your best shot and send it in.

OFFICIAL ENTRY FORM: *(this form may be photocopied)*

Name:
Address:
City:
State: Zip: Phone number:

Each submission must be numbered and labeled with name, address and phone number. *(there is no limit to the number of submissions)*

SUBMISSION NO.	CATEGORY (A,B,C)	LOCATION *(include Parish)*

Send transparencies, completed application, and $5 entrance fee to:
(Make checks payable to Louisiana Conservationist)
Louisiana Conservationist 1994-95 Calendar
Louisiana Department of Wildlife and Fisheries
P.O. Box 98000
Baton Rouge LA 70898-9000